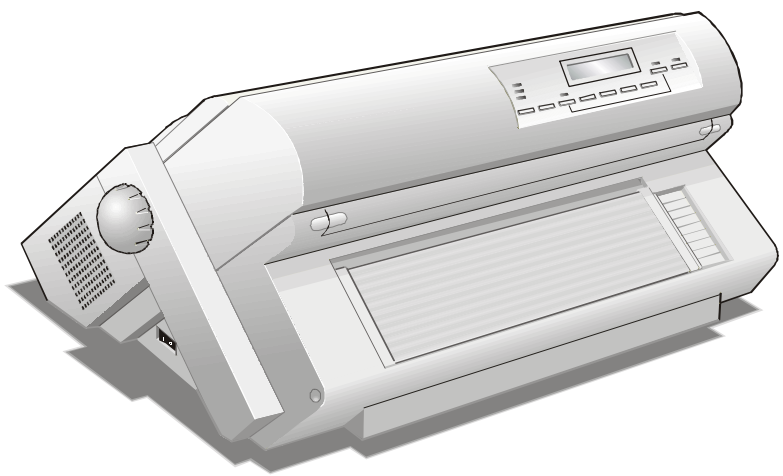
Model LA500
User's Manual



GENICOM®

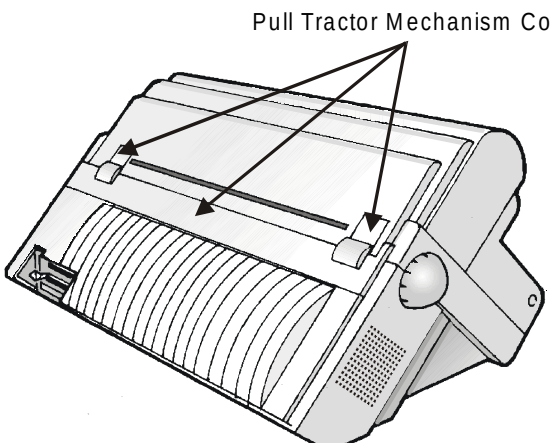
GEK-01006

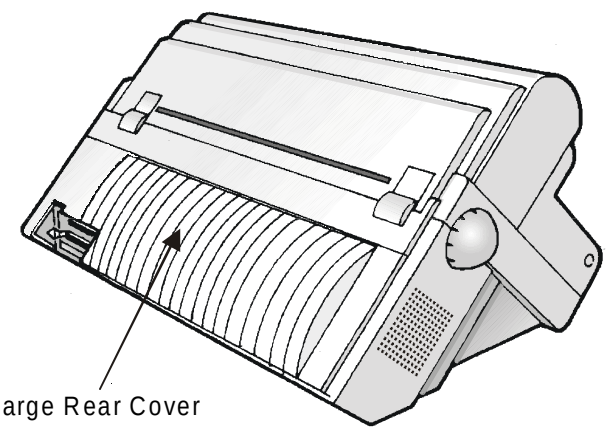
Safety Information

A. Never remove any printer cover except to install a printer accessory and as expressly described in this manual.

B. Please store the printer covers in a safe place. The covers must be reinstalled if you decide to remove any printer accessory.

The following areas of the printer should be covered for safety reasons:





The above openings must always be protected with their covers when the corresponding option is not installed. Do not touch inside the opening and do not insert any object into these openings or into the gears.

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Getting to Know Your Printer

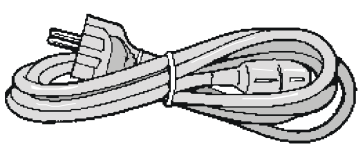
Printer Features

- 24 Needle Print Head
- 136 columns
- Draft printing at 500 cps, LQ printing at 133 cps
- The supported emulations are: IBM Proprinter XL24E, EPSON ESC/P and DEC PPL2
- High Resolution Graphics Printing (360 x 360 dots per inch)
- Multiple copies (1 original and 5 copies)
- Automatic paper path selection
- Easy operability via operator panel menu and S/W commands
- Optional Automatic Sheet Feeder (120 sheets capability) which handles cut sheets, multicopies and envelopes, accepts up to two additional paper bins and includes paper stacker
- Optional Color Mechanism
- Usage of all specific features by means of the Specific Software Driver which is applicable to the most popular S/W Packages
- Plug & Play capability for Windows 95/98/2000®
- Bi-directional IEEE 1284 parallel interface and RS232-C/422-A serial interface

Unpacking Your Printer

Together with the CD-ROM with this *User Manual*, the following items are included in the box:

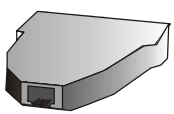
Notify any damage to your supplier.



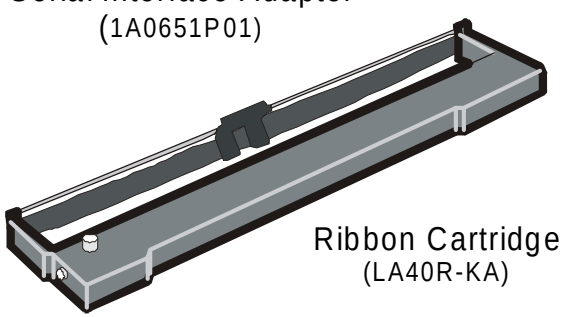
Power Cable



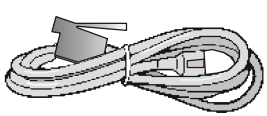
Quick Reference Guide
(GEK-01011)



Serial Interface Adapter
(1A0651P01)



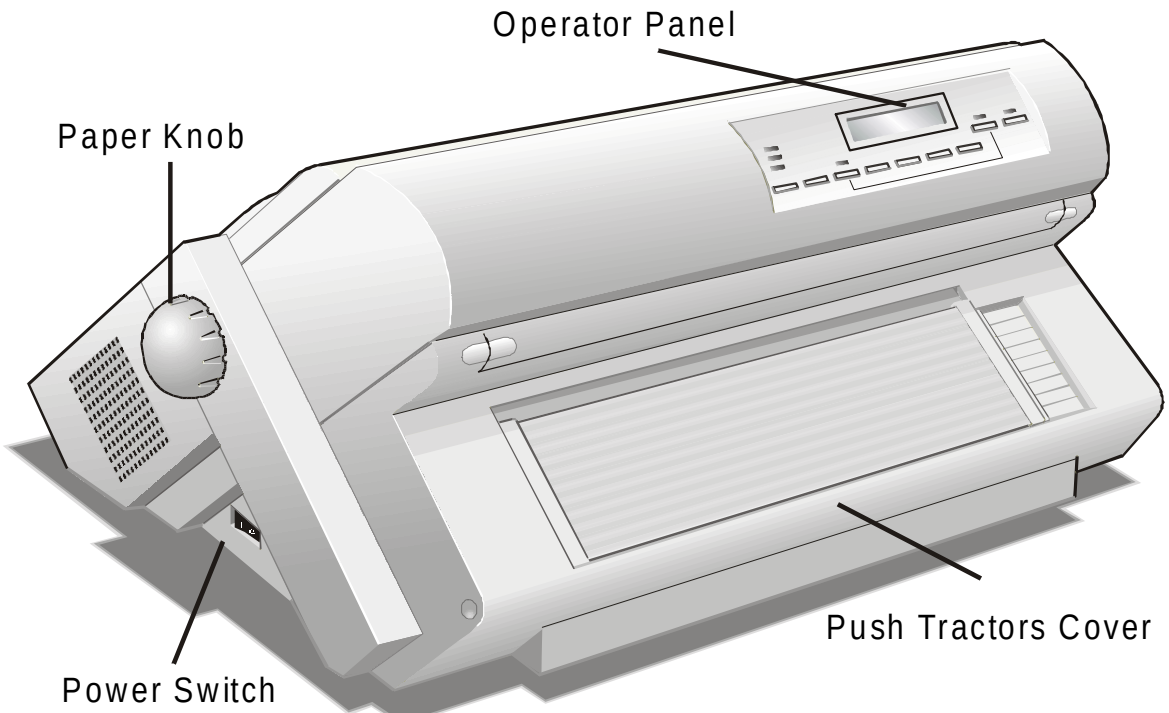
Ribbon Cartridge
(LA40R-KA)



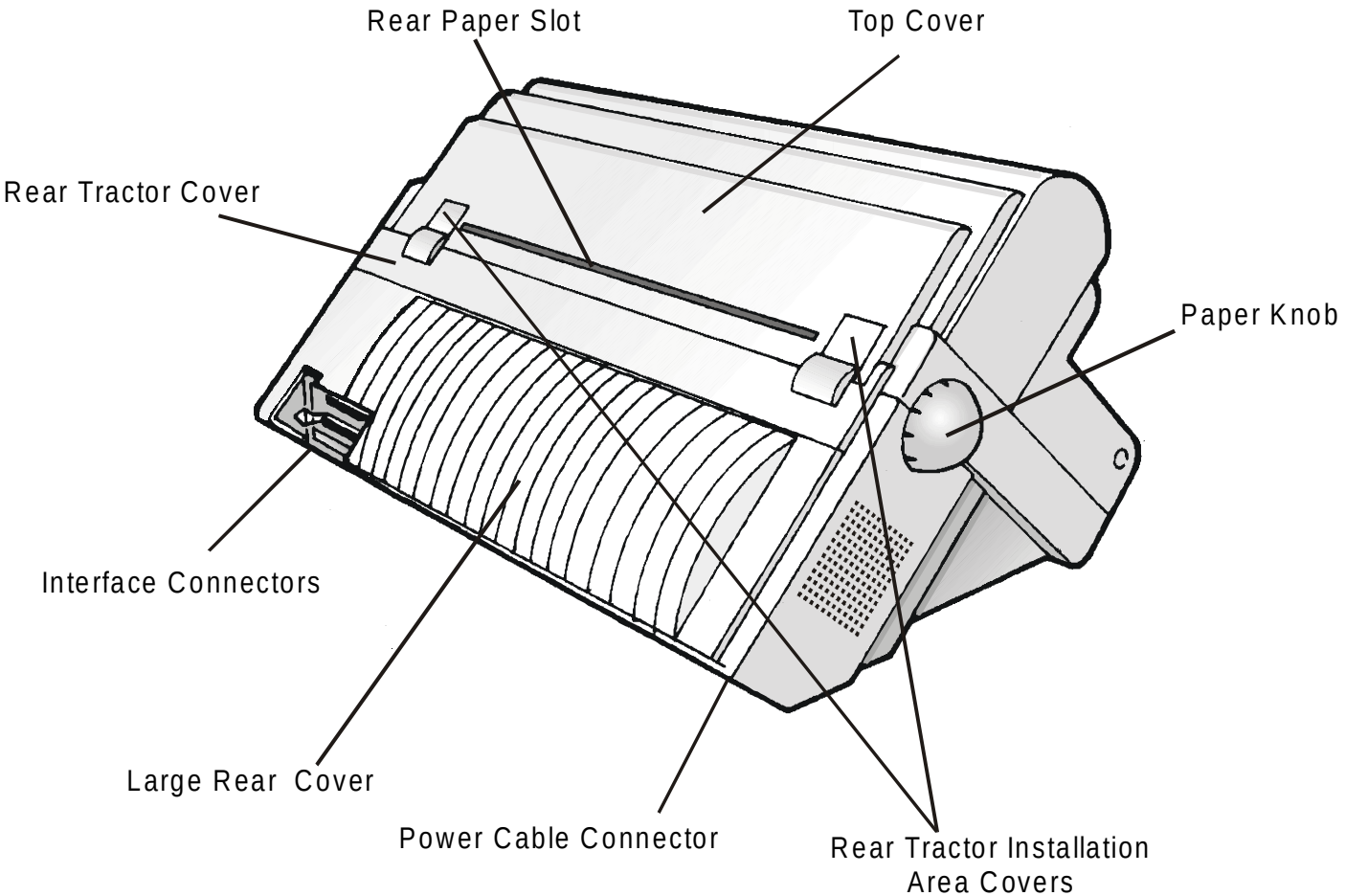
Serial Interface Cable
(BC16E-10)

Printer Parts

Front View



Rear View


Rear Paper Slot
Top Cover
Rear Tractor Cover
Paper Knob
Interface Connectors
Large Rear Cover
Power Cable Connector
Rear Tractor Installation Area Covers

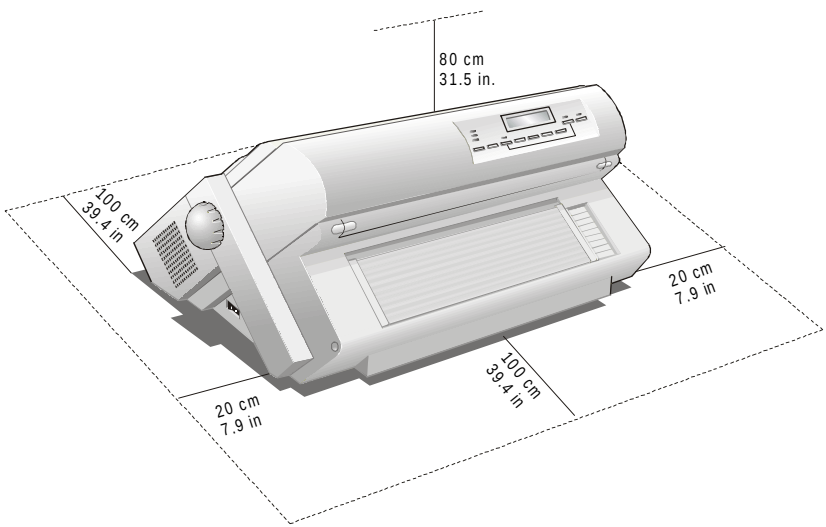
Setting Up Your Printer

Choosing a Suitable Location

Consider the following points when you choose the location for your printer:

- The distance between the printer and the host computer must not exceed the length of the interface cable;
- The location must be sturdy, horizontal and stable;
- Your printer must not be exposed to direct sunlight, extreme heat, cold, dust or humidity (see "**Printer Specifications**" later);
- The power outlet compatible must be with the plug of the printer's power cord.

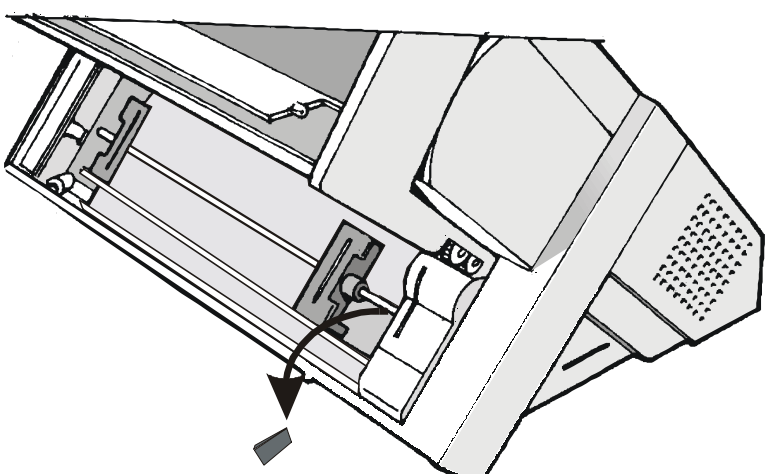
There must be are sufficient clearances on all sides for easy operation. The required space is shown in the figure:

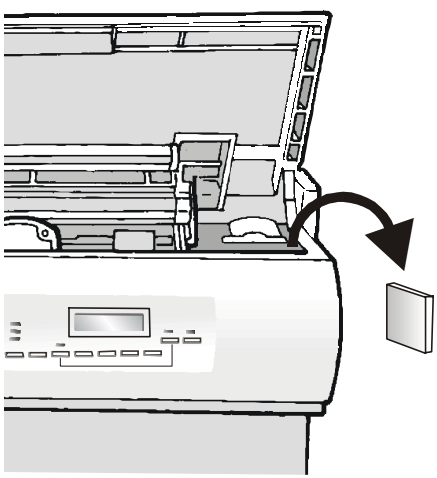


Printer Assembly

Removal of the Shipment Locks

Open all the printer covers and make sure that you remove the two shipment locks from the printer.



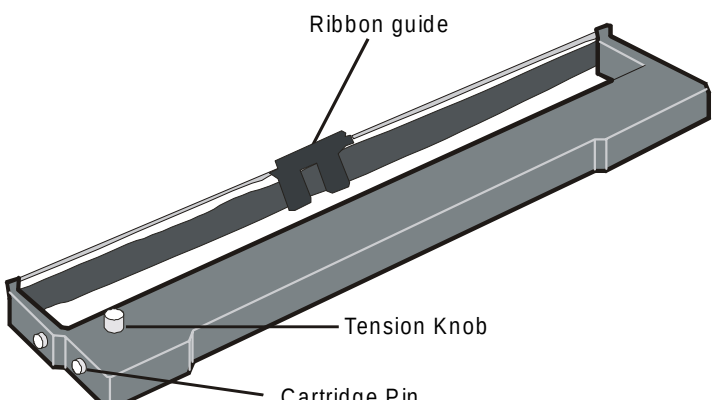


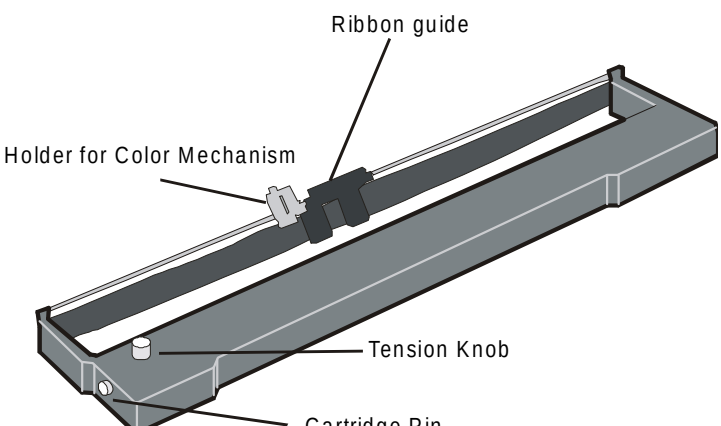
Ribbon Cartridge Installation

Two types of black ribbon cartridges are available for this printer, depending on whether the color mechanism option is installed or not.

Make sure that you are using only GENICOM original consumables.

1. Make sure that the printer is turned off.
2. Find the ribbon cartridge among the accessories.

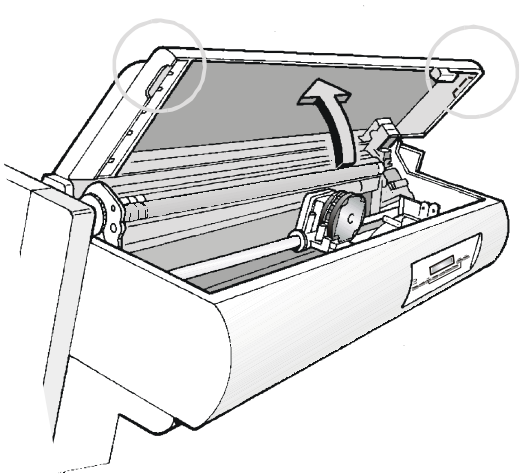




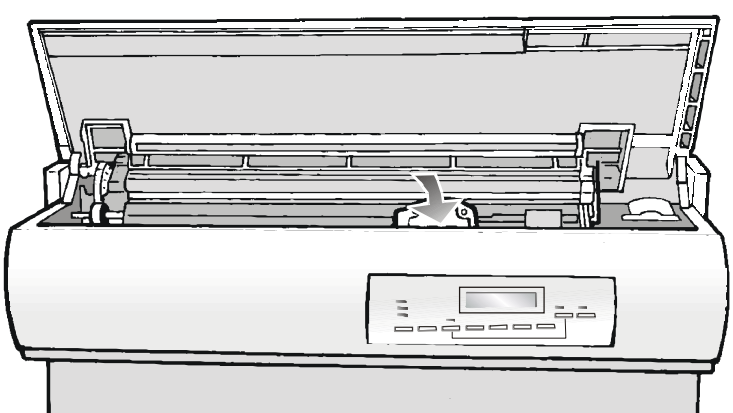
LA40R-KA
to be used, when the color mechanism option is not installed

LA70R-KA (Extended Life Black)
1A3000B02 (Color)
to be used, when the color mechanism option is installed

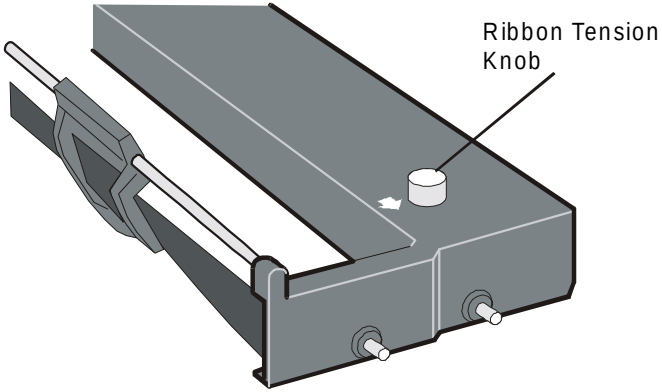
3. Open the top cover using the small handles on either side of the top cover.



4. Turn the printer on. The print carriage prepares for ribbon cartridge installation.



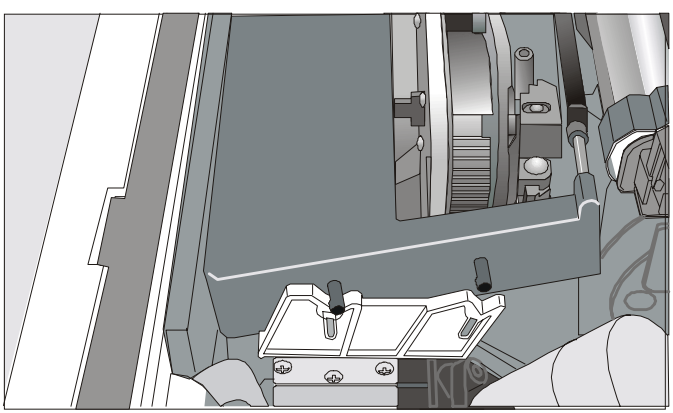
5. Before installing the ribbon cartridge turn the ribbon winding knob in the arrow direction (located on the cartridge) to take up slack in the ribbon.



To avoid damage to the ribbon, do not turn the winding knob in the wrong direction.

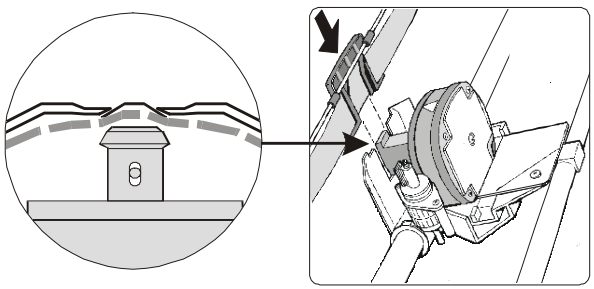
6. Align the cartridge pins with the locking grooves on the left and right cartridge supports.

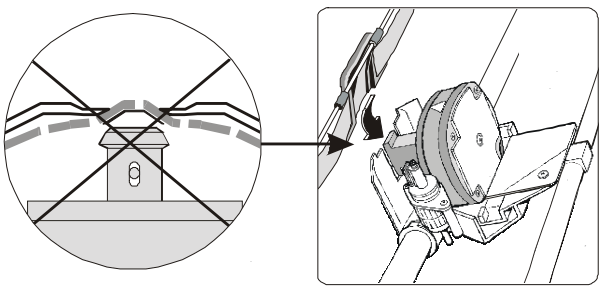
The black "long-life" cartridge (LA70R-KA) or the color cartridge (1A3000B02) to be used when the color kit is installed has only one groove.



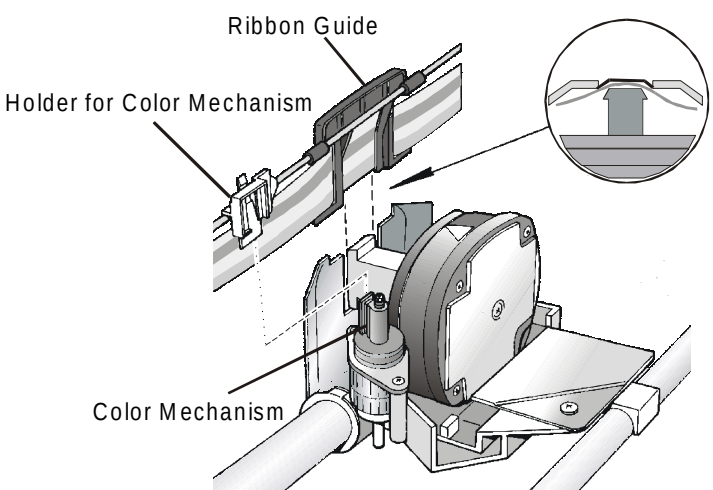
7. Slide and insert the ribbon guide between the print head and the ribbon guide mask holding it perpendicular to the print head.

Make sure that the ribbon is inserted correctly between the print head and the print head mask.

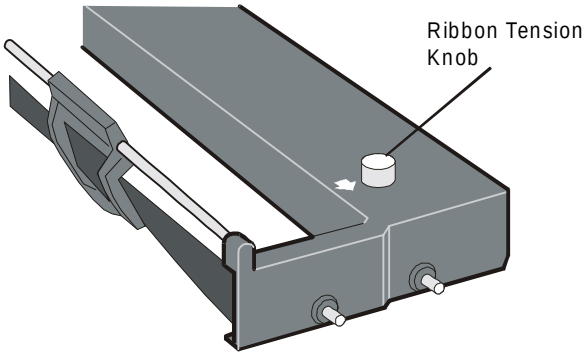




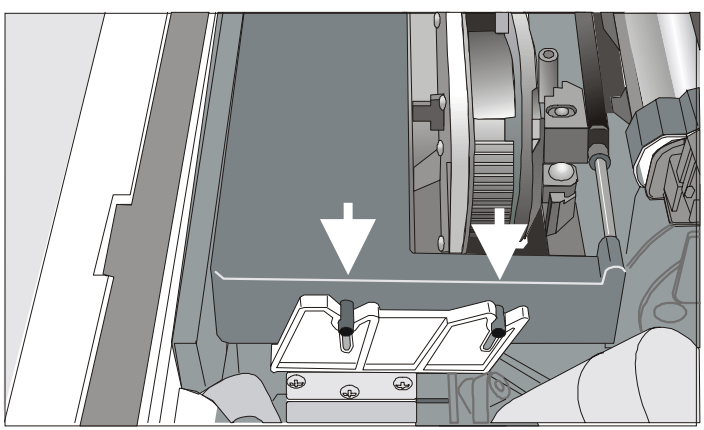
If the color mechanism option is installed on your printer insert the white plastic holder onto the color mechanism as shown in the following figure.



8. Turn the ribbon winding knob in the arrow direction (located on the cartridge) to take up slack in the ribbon.



9. Push the cartridge down gently until it clips into place at all locking points: two on each side for the black ribbon, one on each side for the color and the long life ribbon.



10. Turn the ribbon winding knob again in the direction of the arrow to take up slack in the ribbon.

11. To ensure that the ribbon guide runs freely along the ribbon, manually move the print carriage horizontally.

If the used ribbon cartridge needs to be replaced, see "**Replacing The Ribbon Cartridge**", later in this manual.

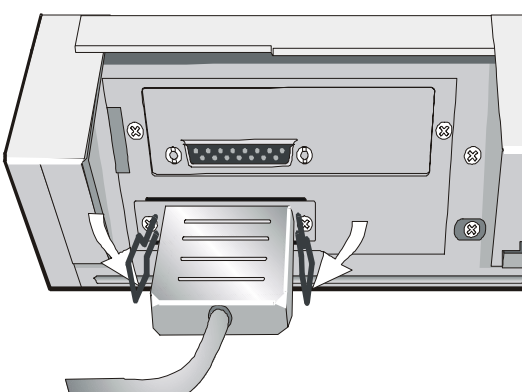
Host Computer Connection

This printer can be connected to the host computer via two available interfaces. The interface connectors are located on the rear of the printer.

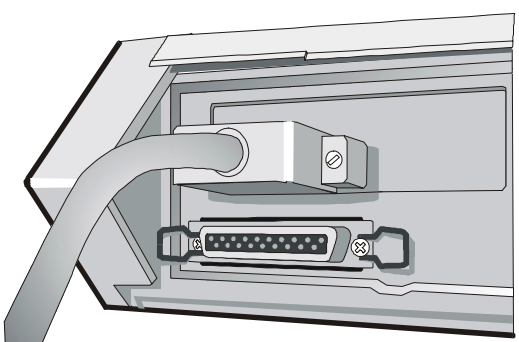
- A bidirectional IEEE1284 parallel interface
- A RS232C/422A serial interface

Before connecting the interface cable, make sure that the printer and the host computer are turned OFF .

Insert the *parallel interface cable* into the parallel connector and fasten it by means of the clips.
Insert the *serial interface cable* into the serial connector, and fasten it by means of the two screws (use the screwdriver).

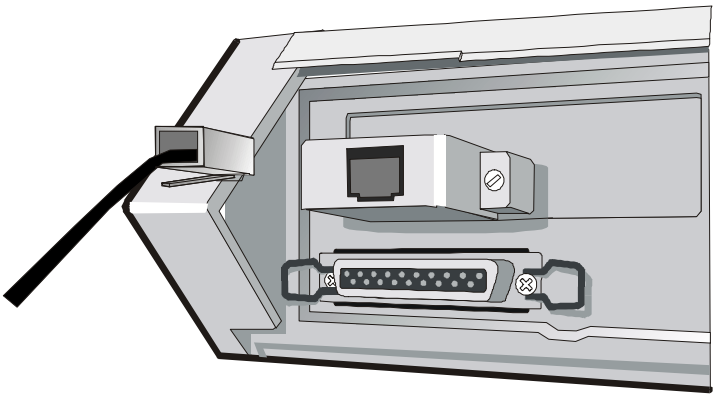


Parallel Interface



Serial Interface

The interface cable with a 6 pin DECconnect type connector can be connected to the serial interface connector by means of the serial interface adapter you received together with the printer.



Software Driver Selection

At this point it is necessary to configure the printer for the application package. The installation procedures depend upon the host environment.

In a WINDOWS 95/98/2000® environment the printer supports the Plug & Play feature.

Install the printer driver following the instructions on the CD-Rom:

1. Insert the CD-Rom into the CD drive.
2. Select the language you prefer and press the `Next=>` button.
3. Select `Install Printer Driver`, then press the `Next=>` button.
4. Select whether the printer should be installed as a local or remote printer, then press the `Next=>` button.
5. Press the `Driver disk` button.
6. Select the CD drive.
7. Select the LA500 directory, then select the environment and the language for the printer driver that should be installed. Press the `OK` button.
8. Select the printer port with which the printer is connected to the host.

The printer drivers of all .GENICOM printers can be found at the Internet Address
http://www.genicom.com/drivers

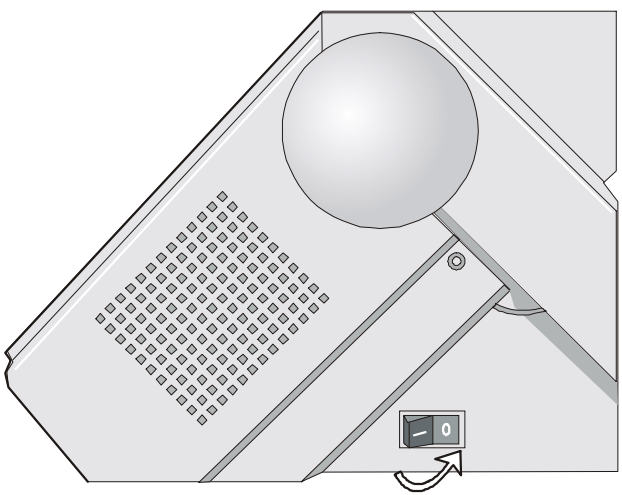
Power Connection

The power outlet must be compatible with the plug of the printer's power cord.

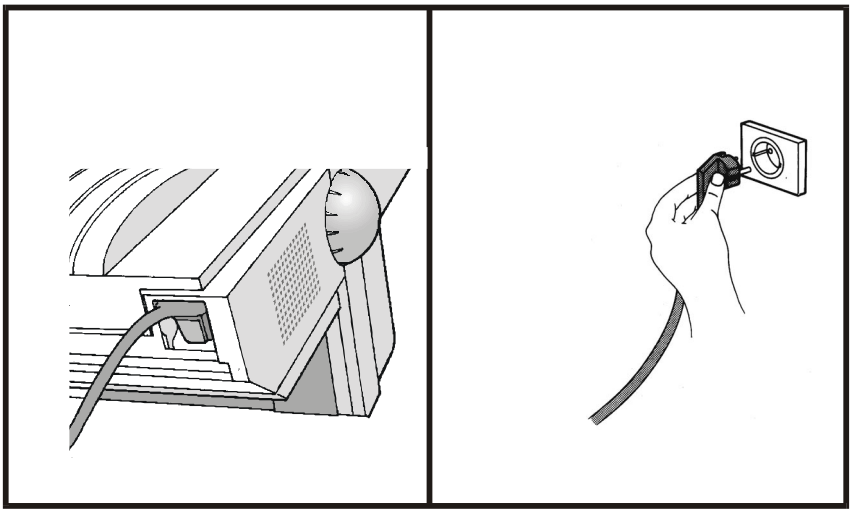
Always use a grounded outlet.

1. Make sure the power outlet is near the printer location and easily accessible.

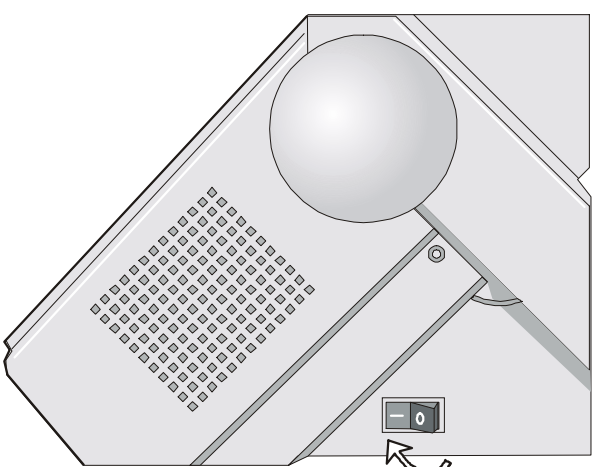
2. Make sure that the power switch is in *0 position (*OFF).



3. Insert the power cable plug into the printer connector and the other power cable end into a convenient outlet (the figure shows the European version).



4. If you need to turn the printer on, press the power switch in the *I position* (ON).



Selecting the Display Language

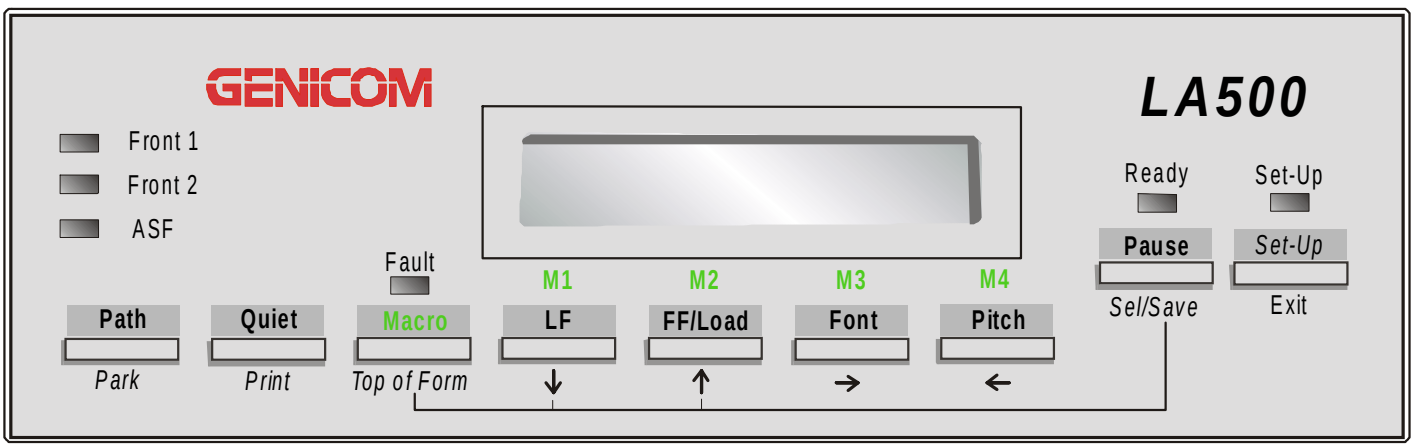
The display messages for the printer can be displayed in five different languages: English (Default), French, German, Italian and Spanish. To select the language, that you prefer, proceed as follows:

1. Press the *Set-Up* button.
   The message "MACROS" appears on the display and the Set-Up indicator blinks slowly.
2. Press the → button. The message "INSTALLATION" appears.
3. Press the ↓ button. The message "LANGUAGE" appears.
4. Press the ↓ button. The message "* English" appears. The * symbol indicates that English is the current language for displaying the messages.
5. Select the language using the ← or the → buttons.
   The different available languages appear on the display, each time you press one of these buttons.
6. Once the desired language is displayed, confirm your choice by pressing the *Sel/Save* button.
   The * symbol appears to confirm your choice.
7. Press the Exit button to exit Set-Up mode.
   The message "Save config." appears, indicating that you are going to save your new configuration.
   - To permanently save your choice in the current M1 macro, press the *Sel/Save* button.
     The new language selection will still be active at next power-on.
   - To temporarily save your choice, press the Exit button.
     The new language selection will be lost at next power-on. The previous language selection will be active.

To cancel your modification and return to the previous configuration, press the → button. The message "Restore Macro 1" appears. Press the *Sel/Save* button.

Operator Panel Presentation

The operator panel enables you to perform many of the printer functions including paper path selections, font selection and the printer setup.



The operator panel consists of:

- A 16 character display (Liquid Crystal Display)
- Six function mode indicators
- Nine function keys

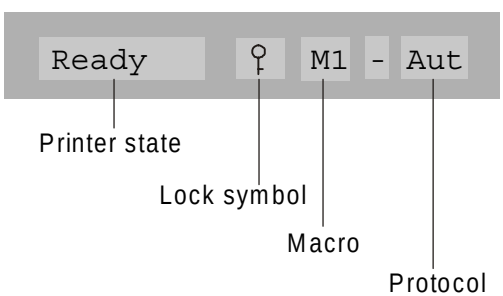
The Display

The display reads different types of messages according to the printer state and the operating mode.

The Basic Screen

The basic screen is displayed in Normal mode. It is overwritten with interactive messages, which are described in a section below.

The display is divided in four parts:



Printer State Message	Meaning
`Ready`	The printer is in Ready state.
`Busy`	The printer is in Busy state.
`Pause`	The printer is in Pause state.
`Quiet`	The printer is in Quiet state. Note: The `Quiet` message overwrites the other printer state messages.

Lock Symbol	Meaning
	The use of a specific font or a specific horizontal pitch is forced (see "The Font/Pitch Screen").

Macro Message	Meaning
M1	The Macro 1 is selected.
M2	The Macro 2 is selected.
M3	The Macro 3 is selected.
M4	The Macro 4 is selected.

Protocol Message	Meaning
DEC	The DEC PPL2 protocol is selected.
IPP	The IBM Proprinter XL24E protocol is selected.
AGM	The Alternate Graphic Mode of the IBM Proprinter XL24E protocol is selected.
EP2	The EPSON ESC/P protocol is selected.
Aut (blinking)	The interface type is set to automatic. The printer switches to the protocol you selected for each type of interface (serial or parallel) when receiving data.
Hex	The Hexadecimal Dump has been selected. Note: The Hex message overwrites the other protocol messages.

The Font/Pitch Screen

You access the Font/Pitch screen from the Basic screen after pressing the Font or the Pitch button. The display is divided in two parts:



When you first access the Font/Pitch screen, the display reads the following Factory setting for the font and the pitch:

Font Messages	Pitch Messages	Common Meaning
SoftContrl.	Soft.	Software Control
Draft	10	

Software Control means that the font and the pitch that are used by the printer are defined through the commands of your software application. These messages appear with the font and the pitch that will be used if the printer receives no software command.

LCD Display Messages

Simple messages

User Instructions

Message	Meaning
`Adjust print gap`	Requires manual setting of the print gap, when exiting Set-Up after having set the `PRINT GAP` Option to `Manual adjust`. See "**Customizing Macros**" for more details.

`Load Push-Front1`
`Load Push-Front2`
`Load Push+Pull`
	Displayed when paper out occurs on the corresponding path or when the paper feeding device is not present.

`Press Park`	This message is displayed when the `USER ACCESS` Option has been set to `Minimum` and the only operator panel button to which the user is allowed access after pressing the *Set-Up* button, is the *Park* button.
`Remove paper`	Requires the loaded paper to be removed
`Select a Macro`	Requires the user to press the button (M1, M2, M3 or M4) corresponding to the Macro he wants to select.

Status Messages

Message	Meaning
Push-Front1	The Push-Front1 path is selected via the operator panel.
Push-Front2	The Push-Front2 path is selected via the operator panel.
Push+Pull	The Push-Pull path is selected via the operator panel.
Top cover open	The top cover is open.

Operating Messages

Message	Meaning
Loading paper...	The printer is loading paper in the current paper path.
Parking paper...	The printer is parking the paper either because the *Park* button has been pressed, or because the paper path has been changed. The paper needs to be parked in order to allow paper loading through the new path.
Printing test...	The printer is printing the output of one of the available printer tests.
Processing...	The printer is processing data. Generic wait for operation end message.
Testing...	The printer is executing the one of the available tests.
Starting-up...	The printer is performing the bootstrap operations.

Rolling messages

Message	Meaning
1.Check paper 2.Press Pause	These messages are displayed during the initialization of the printer, when the Push+Pull paper path is selected. The user should check that the paper has been correctly loaded and confirm by pressing the Pause button.
1.Paper->Pull 2.Press Pause	These messages are displayed during the paper loading procedure for the Push+Pull paper path. The user should install the paper and confirm by pressing the Pause button.
1.Power-off 2.Push -> Front2	These messages are displayed when the Push-Front2 paper path is selected and the tractor is not installed in the Front2 position. Power the printer off and install the Push Front2 tractor option.
1.Tear-off paper 2.Park Paper	The printer was not able to park the paper, because it is too long. It indicates that the paper should be torn-off and then parked again.
Carriage error Check its moving	The print head carriage is not moving correctly. Open the top cover and check if there is anything blocking the carriage.
Comm. Failure Check line	Communication error. The DSR signal is not present on the serial interface. Clear the error by pressing the Pause button twice, then check if the communication parameters for the serial interface are set correctly.
Data lost Check interface	Data has been lost due to incorrect interface settings. Check the interface parameters in the printer Set-Up.
Print gap: Manual Adjust print gap	Displayed when exiting from the printer Set-Up and the PRINT GAP Option has been set to Manual adjust. See "**Customizing Macros**" for more details.

Message	Meaning
`Gap failure` `Check print gap`	Displayed when an automatic gap adjustment error occurred. Power the printer off and on again. If the error is not solved, call the Customer Service.
`Printer failure` `Call Service`	The printer is in an error condition that cannot be solved by the user. Call the Customer Service.
`Ribbon blocked` `Check ribbon`	The ribbon cartridge is blocked. Check the ribbon cartridge installation.

The Indicators

The following graphic conventions are used to describe the possible indicator behaviors:


Off


Lit


Flashing


Flashing rapidly

The State Indicators

The operator panel has three state indicators: Fault, Ready and Set-Up.

Indicator State	Meaning
Ready 	Ready lit. The printer is in Ready or Busy state. The printer can receive printing information from the host.
Ready 	Ready off. The printer is in Pause state. The printer cannot receive printing information from the host and the current print tasks are put on hold.
Ready 	Ready blinking. The printer is in Pause state, and there is still data in the input buffer.
Set-Up 	Set-Up off. The printer is in normal state.
Set-Up 	Set-Up blinking slowly. The printer is in Set-Up state. See the description of the paper path indicators below.
Fault 	Fault lit. The printer is out of paper.
Fault 	Fault blinking slowly. There is a fault such as cover open, paper jam, communication error, and buffer overflow.
Fault 	Fault blinking rapidly. There is an internal diagnostic fault.

The Paper Path Indicators

The Paper Path indicators identify which Paper Path is selected. With this printer the paper may be loaded through the following Paper Paths:

- Front1 Paper Path
- Front2 Paper Path
- ASF Paper Path
- Push-Pull Paper Path

Always remember to power-off the printer before mounting any new paper feeding device. This allows the printer to automatically detect this device at power-on.

Indicator Status	Meaning
 Front 1  Front 2  ASF	Paper Path indicator lit. The Paper Path corresponding to the lit indicator is selected. In this example the Push-Front1 Paper Path is selected.
 Front 1  Front 2  ASF	Paper Path indicator blinking. The Paper Path corresponding to the blinking indicator is selected; but it is out of paper. In this example the Push-Front1 Paper Path is out of paper.

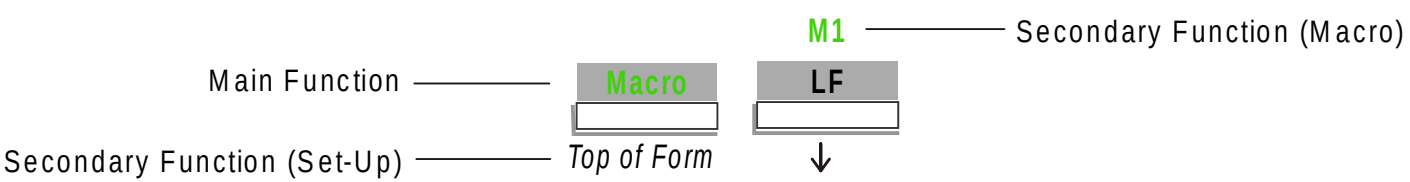
The Buttons

The operator panel buttons are used to control the printer. Their function depends both on the printer state and on the operating mode you have chosen. See the following section to know the states and modes definitions.

The main function of each button is related to the Normal mode. This function is printed above the button in a shaded rectangle.

The secondary functions concern the Set-Up mode, the Top of Form mode or any other specific mode. These functions are printed outside the shaded rectangle. You access these secondary functions after first pressing a button as follows:

- you access the secondary functions printed in italic style after pressing the *Set-Up* button
- you access the secondary functions printed in green after pressing the Macro button.



The Operating States

The following definitions explain the printer operating states. A state is a specific situation essentially characterized by the data flow interpretation and the physical configuration of the printer transmitted through the different sensors. The first part of the display indicates the current operating state (see the section "**The Display**").

Throughout this User Manual, we refer to these definitions.

Operating State	Definition
Ready	- No data are to be printed - No fault is detected by the sensors
Busy	- Data are to be printed (being printed or not) - No fault is detected by the sensors
Pause	- Printing is put to hold - No fault is detected by the sensors
Fault	- A fault is detected by the sensors - The printer buzzer sounds according to the Set-Up setting, and the display reads a specific error message

The Operating Modes

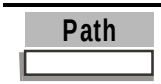
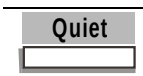
The following definitions explain the printer operating modes. An operating mode allows the user to perform specific operations grouped according to a common function.

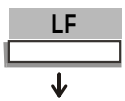
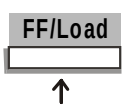
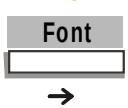
Some other features are also called modes, especially within the Set-Up options. The following description concerns only the modes that affect how you use the printer, mainly by using the button functions. Throughout this User Manual, we refer to these definitions.

Operating Modes	Definition
Normal	This is the basic operating mode of your printer, allowing you to perform all the operations related to getting documents printed: printing, handling paper, selecting fonts, managing the operating states, switching between your customized configurations.
Quiet	This is the same mode as Normal, except that printing is performed with a lower noise level than in Normal mode.
Tear/View	This mode is part of the Normal mode, since it defines the way the paper moves at the end of each print task or when putting the task on hold (Pause state). For example, you can make the paper automatically advance to the tear bar at the end of the print task, or see the last printed line when you switch to Pause state.
Set-Up	This mode mainly allows you to set-up your printer according to your operating environment. You can also define 4 customized configurations depending on the different kinds of jobs you have to manage.
Top of Form	You can quickly access the Top of Form mode (abbreviated to ToF) from Normal mode in order to modify the position of the first printable line.
Hex-Dump	This is a special printing mode allowing you to check the proper functioning of your application or your printer.
Adjustment	This mode allows you to perfectly adjust your printer behavior, in particular the bidirectional alignment, the position of the first printable line and the alignment of the paper perforation with the tear bar.

The Function of the Buttons in Normal Mode

As explained previously, the function of the button mainly depends on the operating mode but is also affected by the printer state. Normal mode gives you direct access to the following button functions:

Button	Functions	Purpose			
		Ready/Pause State	Busy State	Fault State	
				Paper Out	Other Fault
	Path	To select one of the available paper paths. *See "**How to Select a Paper Path**".*	Inactive	Same as for Ready/Pause state.	Inactive
	Quiet	To toggle between the Quiet and the Normal modes. *See "**Reducing the Print Noise Level**".*	Same as for Ready/Pause state.	Same as for Ready/Pause state.	Inactive
	Macro	To select one of the Macros (access to the M1, M2, M3 and M4 button functions). *See "**Using Macros**".*	Inactive	Same as for Ready/Pause state.	Inactive

Button	Functions	Purpose			
		Ready/Pause State	Busy State	Fault State	
				Paper Out	Other Fault
M1  	LF M1	LF - To advance the paper one line at the current vertical pitch. *See* "**Moving the Paper**". M1 - To select Macro 1. *See* "**Using Macros**".	Inactive	Same as for Ready/Pause state.	Inactive
M2  	FF/Load M2	FF/Load - To advance the paper. The paper moves according to the settings of the Tear/View mode. *See* "**Moving the Paper**". M2 - To select Macro 2. *See* "**Using Macros**".	Inactive	Same as for Ready/Pause state.	Inactive
M3  	Font M3	Font - To force one of the available resident fonts. *See* "**Selecting Print Features**". M3 - To select Macro 3. *See* "**Using Macros**".	Inactive	Same as for Ready/Pause state.	Inactive

Button	Functions	Purpose			
		Ready/Pause State	Busy State	Fault State	
				Paper Out	Other Fault
M4 Pitch ←	Pitch M4	Pitch - To force one of the available resident pitch values. *See* "**Selecting Print Features**". M4 - To select Macro 4. *See* "**Using Macros**".	Inactive	Same as for Ready/Pause state.	Inactive
Pause *Sel/Save*	Pause	To toggle between the Pause and the Ready state. The paper moves according to the settings of the Tear/View mode. *See* "**Holding a Print Task**".	Same as for Ready/Pause state.	Same as for Ready/Pause state.	Clears the fault and returns to previous state.
Set-Up Exit	*Set-Up*	To access the Set-Up mode, the corresponding button functions and other specific button functions (*Park*, *Print*, *Top of Form*). *See* "**The Function of the Buttons in Set-Up Mode**".	Same as for Ready/Pause state.	Same as for Ready/Pause state.	Inactive

The Function of the Buttons in Set-Up Mode

As explained previously, the function of the button mainly depends on the operating mode. The printer state also affects the specific function purpose. By definition, you access the following button functions in Set-Up mode, which is after pressing the *Set-Up* button.

Button	Functions	Purpose
Path Park	*Park*	With the Push-Front1 or Push-Front2 Paper Paths, to park the paper. With the Push-Pull Paper Path advances the paper. *Note: This function is no longer active once you enter Set-Up.* See "**Paper Handling**".
Quiet Print	*Print*	Pressing this button the printer prints the firmware version of your printer and the list of set-up features of the four macros and their associated values. *Note: This function is no longer active once you enter Set-Up.* See "**Printing the Printer Configuration**".
Macro Top of Form	*Top of Form*	To access the Top of Form mode. *Note: This function is no longer active once you enter Set-Up.* See "**Adjusting the Top of Form from the Operator Panel**".
M1 LF ↓	↓	In Set-Up, to navigate downwards (through Functions, Options, Sub-options and Values). See "**How to Configure Your Printer**".
M2 FF/Load ↑	↑	In Set-Up, to navigate upwards (through Functions, Options, Sub-options and Values). See "**How to Configure Your Printer**".

Button	Functions	Purpose
M3 Font →	→	In Set-Up, to navigate at the same level to the next item. See "**How to Configure Your Printer**".
M4 Pitch ←	←	In the Set-Up structure, to navigate at the same level to the previous item. See "**How to Configure Your Printer**".
Pause *Sel/Save*	*Sel/Save*	To select a Value and save the new Configuration. See "**How to Configure Your Printer**".
Set-Up Exit	Exit	To exit Set-Up mode without saving the Values. See "**How to Configure Your Printer**".

The Functions of the Buttons in Top of Form Mode

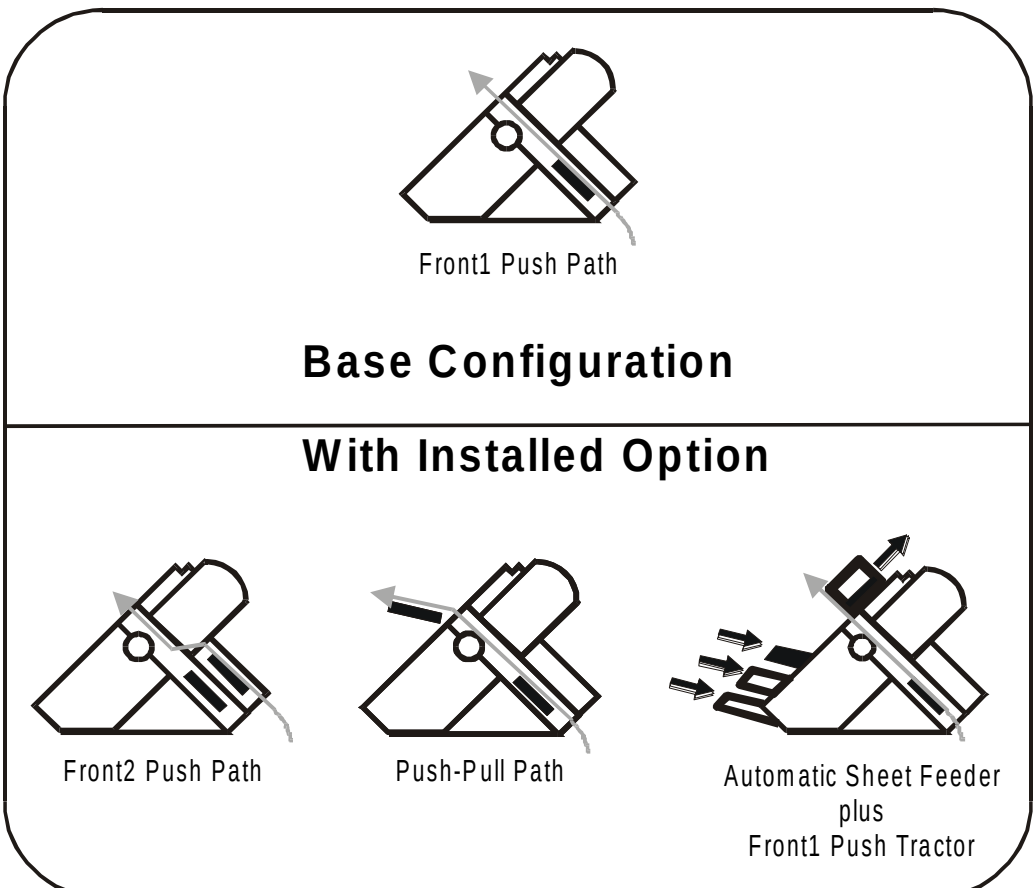
As explained previously, the function of the button mainly depends on the operating mode but is also affected by the printer state. You access the following button functions in the Top of Form mode that is after pressing the *Top of Form* button.

The following table introduces only the buttons active in Top of Form mode.

Button	Function	Purpose
Macro *Top of Form*	*Top of Form*	To reset the Top of Form Value to zero.
M1 LF ↓	↓	To reduce the Top of Form Value (the paper moves backwards accordingly). See "**Adjusting the Top of Form from the Operator Panel**" .
M2 FF/Load ↑	↑	To increase the Top of Form Value (the paper moves forwards accordingly). See "**Adjusting the Top of Form from the Operator Panel**".
Pause *Sel/Save*	*Sel/Save*	To save the Top of Form Value and return to Normal mode. See "**Adjusting the Top of Form from the Operator Panel**".
Set-Up Exit	Exit	To return to Normal mode without saving the Top of Form Value. See "**Adjusting the Top of Form from the Operator Panel**".

Paper Handling

Paper Paths



How to Select a Paper Path

The selection of the paper path can be done using the printer driver with your application software. There are also two ways of selecting the paper path operating on the printer.

- using the operator panel, to change the paper path temporarily for a specific need at a given time
- using the Set-Up mode, to switch to a specific customized Configuration (Macro) including the use of a dedicated paper path.

Using Set-Up Mode

The Set-Up mode allows you to manage the paper paths used at power-on. Using the PATH AT POWER-ON Option, you can choose one of the two possibilities:

Path at Power-on Value	Definition
From Macro	The paper path at power-on will be the paper path selected in the active Macro at power-on. The corresponding PAPER PATH Option is available in the Macro Option list only when this Value is selected.
Last sel. Path	The paper path at power-on will be paper path selected when the printer was powered off.

If you select the From Macro Value, select the paper path you intend to use in the PAPER PATH Option available in the Macro Option list. If the paper feeding device corresponding to your Macro definition is not present at power-on, the display shows a specific message.

See "Configuring Your Printer" for information about the PATH AT POWER-ON Option and "Customizing Macros" for information about the PAPER PATH Option.

Using the Operator Panel

The Path button on the operator panel is used to select the paper path you want to use. To select a paper path using the operator panel:

1. Press the Path button.
   The indicator corresponding to the currently selected path starts blinking. The display shows the paper path name.
2. Press the Path button again.
   The Path indicators light up one after one another. Only the indicators of the available paths light up, i.e. those for which the corresponding tractor unit is installed.
   Simultaneously, the display reads the corresponding paper path names.
3. Once the indicator corresponding to the paper path you want to select is lit, release the button.
   Automatic paper handling operations depending on your choice are performed after a time-out.
   If the new selected path is out of paper, the corresponding indicator blinks.
   The printer will load the paper corresponding to your new paper path selection only when receiving data.

Paper Specifications

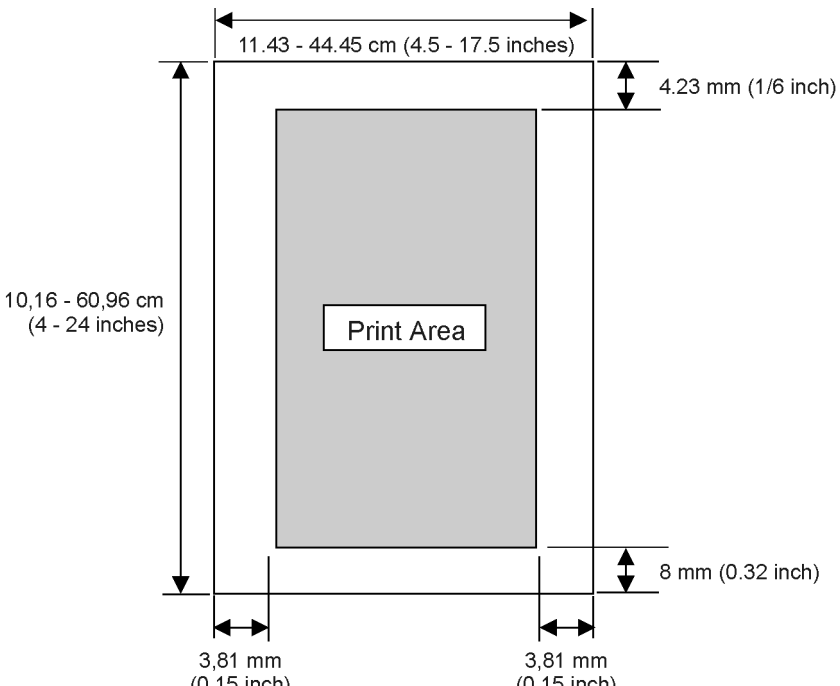
It is important to use the correct paper for obtaining the best performance. See the information table below:

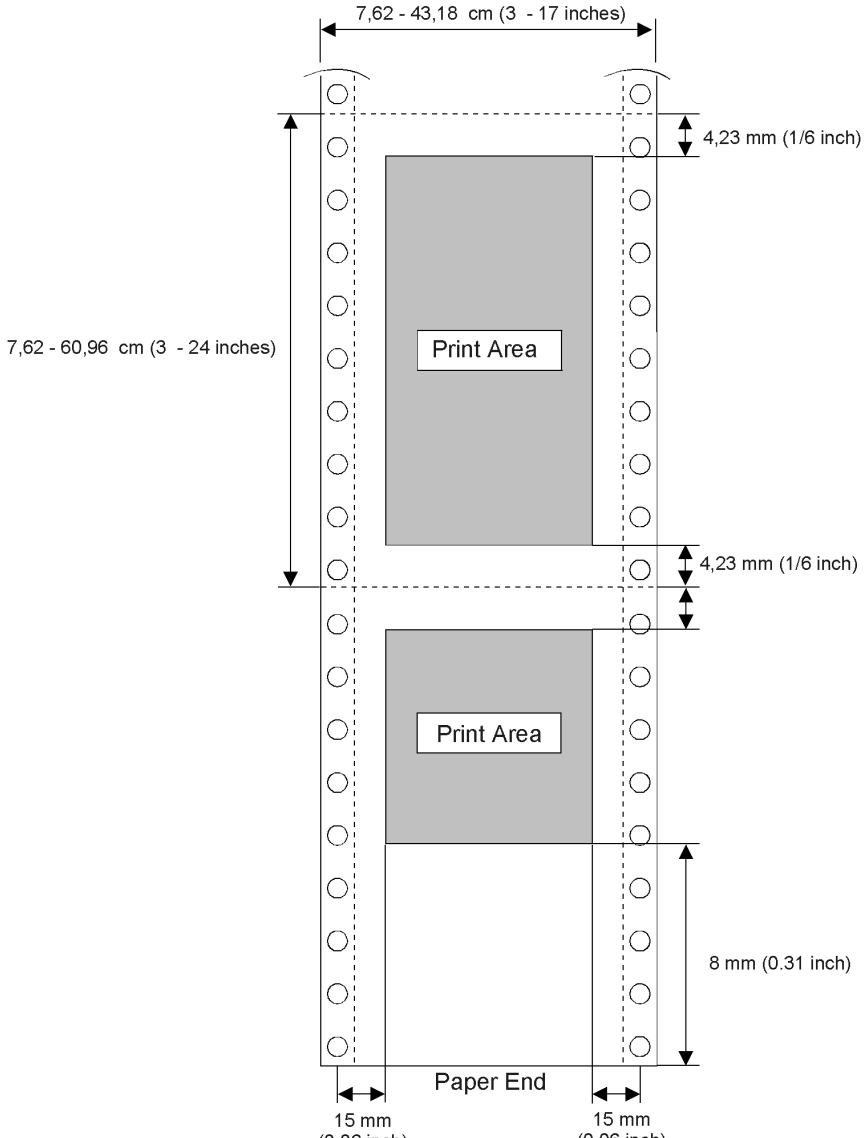
Fanfold Paper

Loading Mode	Front1 Tractor	Front2 Tractor (option)	Push-Pull (option)
Width	76 to 432 mm 3 to 17 inches	76 to 432 mm 3 to 17 inches	76 to 432 mm 3 to 17 inches
Length	76 to 609 mm 3 to 24 inches	76 to 609 mm 3 to 24 inches	76 to 609 mm 3 to 24 inches
Thickness	max. 0.635 mm 0.025 inches	max. 0.635 mm 0.025 inches	max. 0.635 mm 0.025 inches
Copies	1 + 5	1 + 5	1 + 5
Weight (g/m^2):			
- Original	55 to 150	55 to 150	55 to 150
- Other sheets	45 to 75	45 to 75	45 to 75
- Carbon Paper	35	35	35

Print Area

This section illustrates the recommended print area for single sheets and continuous forms.




7,62 - 43,18 cm (3 - 17 inches)
4,23 mm (1/6 inch)
7,62 - 60,96 cm (3 - 24 inches)
Print Area
4,23 mm (1/6 inch)
Print Area
8 mm (0.31 inch)
Paper End
15 mm
(0.06 inch)
15 mm
(0.06 inch)

Paper Thickness

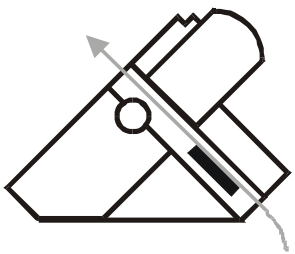
Paper thickness is given by the weight of the paper in either grams per square meter (g/m^2) or in pounds per bond (lbs/bond). The following table shows the allowable paper thickness for one-part paper or for each sheet of multipart paper.

The weight of carbonless or carbon-backed paper may vary, depending on the paper manufacturer. When using paper of borderline thickness, test the paper before running a job.

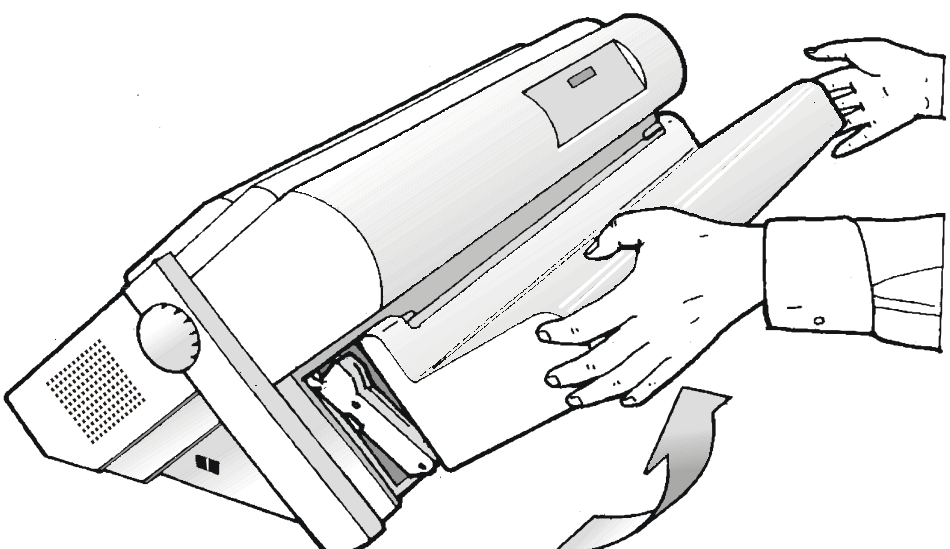
Type of Paper	No. of parts	Push-Front	Pull
One-part	Single	55 to 100 g/m^2 (14 to 25 lbs/bond)	55 to 100 g/m^2 (14 to 25 lbs/bond)
Carbonless Two-parts	Top	< 60 g/m^2 (15 lbs/bond)	< 60 g/m^2 (15 lbs/bond)
	Bottom	< 60 g/m^2 (15 lbs/bond)	< 60 g/m^2 (15 lbs/bond)
Three to six parts	Top	< 60 g/m^2 (15 lbs/bond)	< 60 g/m^2 (15 lbs/bond)
	Middle page	< 40 g/m^2 (15 lbs/bond)	< 40 g/m^2 (15 lbs/bond)
	Bottom	< 60 g/m^2 (15 lbs/bond)	< 60 g/m^2 (15 lbs/bond)
Carbon paper	Top	< 35 g/m^2 (9 lbs/bond)	< 35 g/m^2 (9 lbs/bond)

Fanfold Paper Loading

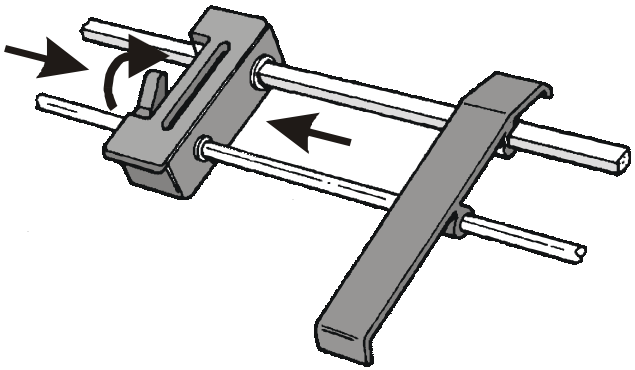
Loading Paper Using the Front1 Tractor



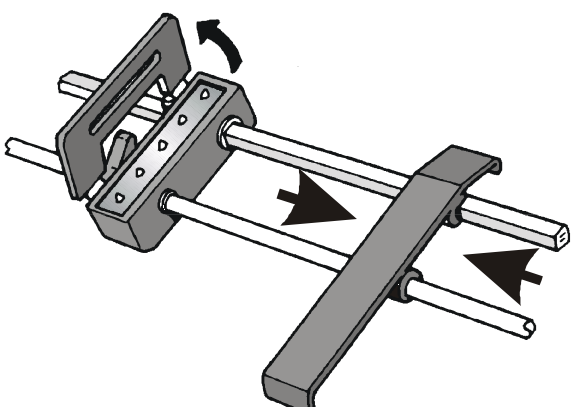
1. Open the tractor area cover turning is upwards and lay it on the top of the printer.



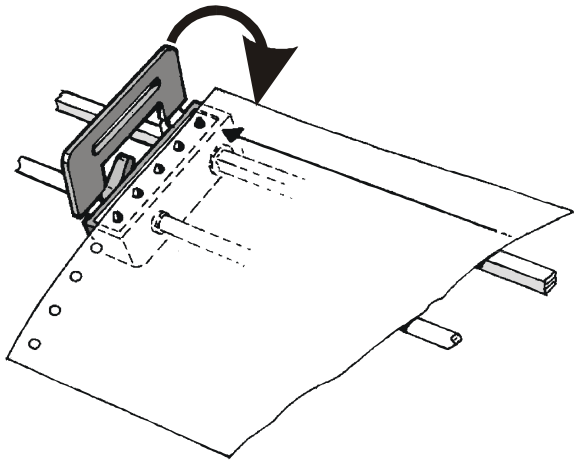
2. Unlock the sprockets of the Front1 tractor moving the sprocket levers up. Slide the left sprocket to the first printing column.



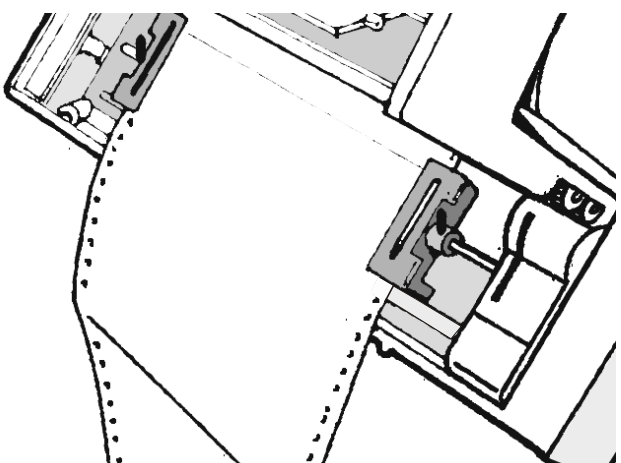
3. Space the paper guides along the tractor bar. Open the sprocket covers of the left and right sprocket



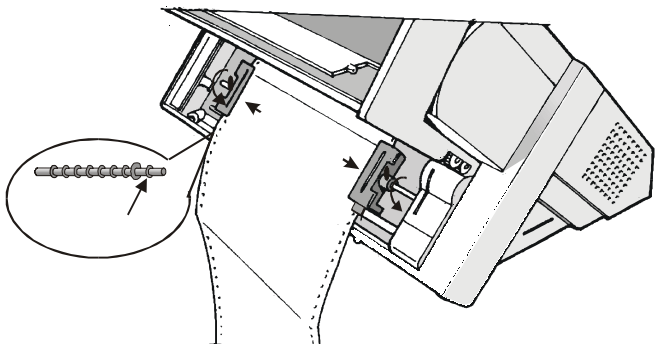
4. Hold the fanfold paper in front of the sprockets and insert the paper perforation on the left sprocket pins and close the sprocket cover.



5. Insert the paper on the right sprocket pins and close the sprocket cover.



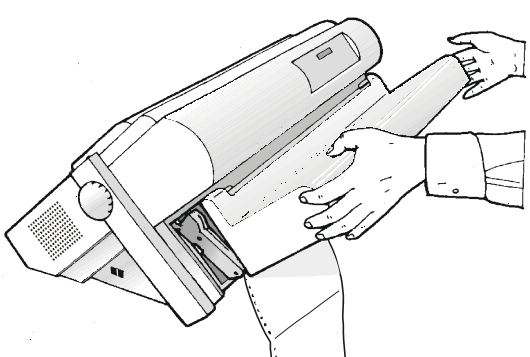
6. Match the left sprocket for the first printing position with the ninth position and lock it in place. Adjust the right sprocket gently to remove slack from the paper and lock it in place.



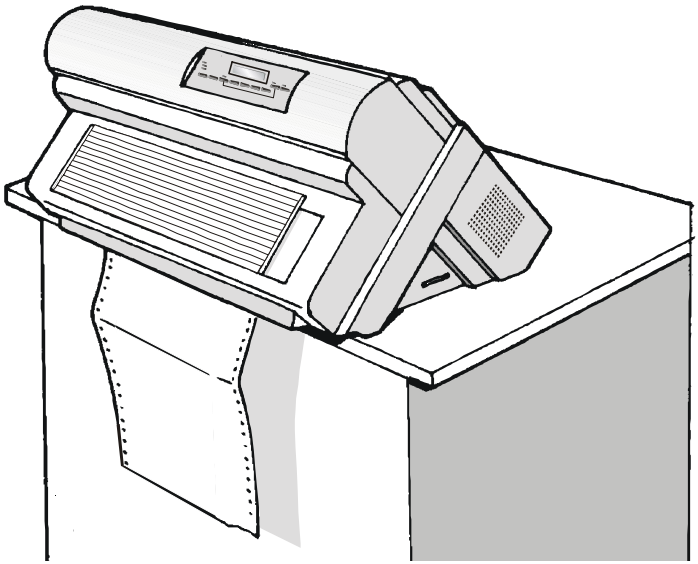
Make sure the paper is not taut.

7. Close the tractor area cover.

   Press the FF/Load button, the message "`Loading paper ...`" appears on the display and the paper is automatically loaded into the printer. When the paper stops, the Front 1 indicator is on, the Fault indicator is off ad the display shows "`Ready  M1 Aut`". You are now ready to print.



8. The paper must be loaded as shown in figure.



Parking the Paper

Paper parking is the function that moves the paper out of the printing sector (the area between the print head and the platen). When you decide to remove the paper from the printer, the paper must be parked first.

Parking the paper allows you to use the other paper paths.

Proceed as follows:

1. Press the *Set-Up* button.
2. Press the *Park* button.
   The paper is moved backwards out of the printing sector.

If you select the `No tear/reverse` Value for the `TEAR/VIEW MODE` Option, the parking function is inhibited.

Unsuccessful Paper Parking

If the paper is not totally parked (paper still inserted in the printer), the printer enters the Fault state and the display shows:

```
1. Tear-off paper
2. Press Park
```

- Tear-off the paper.
- Press the *Park* button again.

Resetting Paper Position

Resetting the paper position is useful, if you have moved the paper with the platen knob, or if for any other reason you do not know exactly where the paper is positioned.

To reset the paper position in the current paper path:

1. Press the *Set-Up* button, followed by the *Park* button.
   The printer parks the paper.

2. Press the FF/Load button.
   The paper is positioned with the first printable line facing the print head.

Printing on Adhesive Labels

When printing on adhesive labels you must disable the backward movement of the paper, because the unsticking of the labels can cause paper jams when the paper is moved backwards. Proceed as follows:

1. Press the *Set-Up* button to put the printer in Set-Up mode.
   The display shows `MACROS`.
2. Press the ↓ button. `MACRO X` is displayed, where `X` is the number of the current Macro.
3. Press the ↓ button.
   The display shows `PROTOCOL`.
4. Press the → button until the `TEAR/VIEW MODE` Option is displayed.
5. Press the ↓ button to pass over to the Values for the Tear/View mode.
6. Press the → or ← button, until `No tear/reverse` is displayed.
7. Press the *Sel/Save* button to set confirm the new setting. An asterisk is displayed to indicate that the Value has been selected.
8. Press the Exit button to exit the Set-Up mode.
   The message "`Save config`." appears, indicating that you are going to save your new setting.
9. To permanently save your choice, press the *Sel/Save* button.

It is not necessary to perform the above operation when using the Push-Pull paper path, as all backwards movements are inhibited with this path. We recommend using the Push-Pull path when printing on adhesive labels, but note however that the printing of landscape barcodes may generate backward movements.

Moving the Paper

To move the paper we recommend you to only use the operator panel buttons:

LF:	Advances the paper one line at the current vertical pitch.
FF/Load:	Advances the paper depending on the setting of the TEAR/VIEW MODE Option. See "**Configuring Your Printer**".

Use only the platen knob to recover from paper jams. Always reset the paper position after moving the paper with the platen knob.

Viewing the Last Printed Line

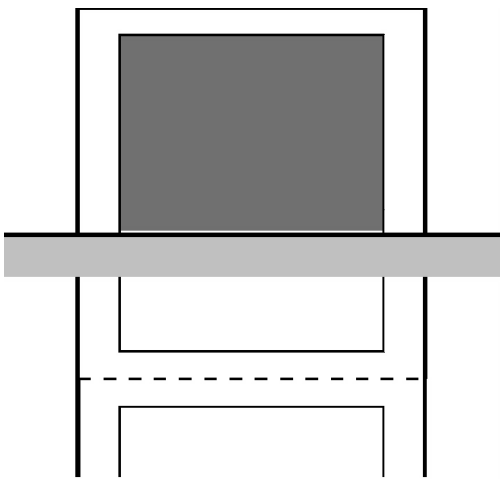
The TEAR/VIEW MODE Option of the Set-Up allows you to manage the automation of paper movements related to specific purposes. Viewing the last printed line during a print task is affected by this automation management.

The following description shows an example of how to use your printer features in the most automatic way possible. We assume that the TEAR/VIEW MODE Option is set to one of the Auto. advance Values. For more information about managing the viewing of the last printed line, see "**Customizing Macros**".

To view the last printed line during a print task:

1. Press the Pause button.
   The printer finishes printing the current line. The paper is fed so that the last printed line is above the tear bar.

2. To resume your print task, press the Pause button again.



Advancing the Paper for Tearing-off

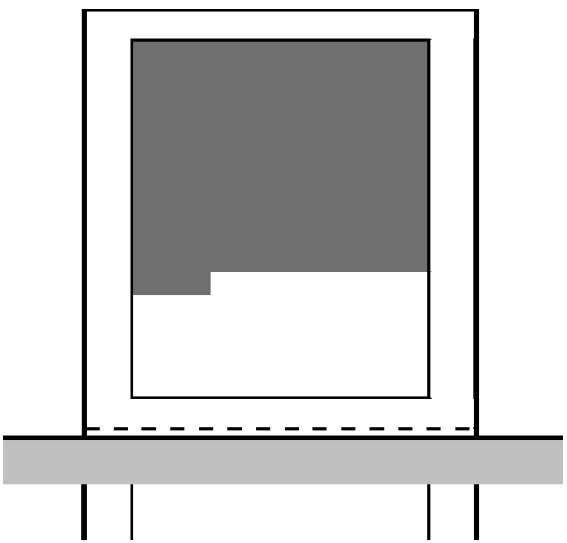
The TEAR/VIEW MODE Option of Set-Up mode allows you to manage the automation of paper movements for specific purposes. Advancing the paper for tearing-off is affected by this automation management.

The following description shows an example of how to use your printer features in the most automatic way possible. We assume that the TEAR/VIEW MODE Option is set to one of the Auto. advance Values. For more information about managing the advancing the paper for tearing-off, see "**Customizing Macros**".

To advance the paper for tearing-off during a print task:

1. Press the Pause button.
   The printer finishes printing the current line. The paper is fed so that the last printed line is above the tear bar.

2. Press the FF/Load button.
   The paper is fed so that the perforation faces the tear bar.



To advance the paper for tearing-off at the end of a print task:

1. Ensure that the TEAR/VIEW MODE Option in the Set-Up is set to one of the Auto. advance Values and that the printed file includes a final Form Feed command.

2. Just wait the end of the time-out to see the paper perforation automatically being fed to the tear bar.

Operating your Printer

Using Macros

About Macros

A Macro is a set of pre-determined parameters allowing you to adapt your printer to your particular need. Your printer comes with four different Macros. You can customize the four Macros according to your specific needs by using Set-Up mode.

For more information about using Set-Up mode, see "Configuring your Printer".

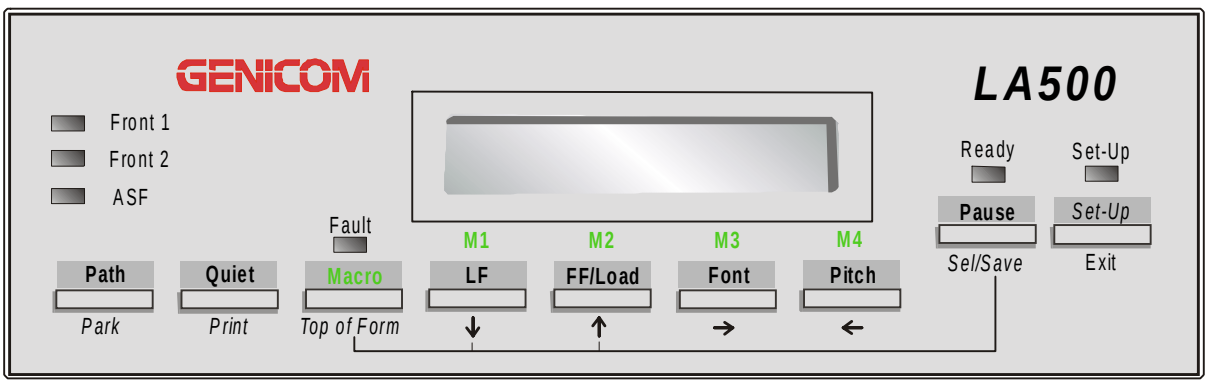
In addition to the Macro, you also have to adapt the entire printer configuration by selecting other parameters defining the interface, the installation, the user adjustments etc. For this printer, such parameters are called Values. These Values are sorted within Functions, Options and Sub-options. The Macro is one of the Functions within the printer Configuration.

The Macro Options are described in "Customizing Macros".

Macro Option Samples	Sub-options	Values
Protocol	Protocol-Serial	DEC PPL2
		IBM XL24E
		EPSON ESC/P
	Protocol-Parallel	DEC PPL2
		IBM XL24E
		EPSON ESC/P
Font		Draft
		Courier
		...

Switching between Macros

1. To switch between the Macros: Press the Macro button on the operator panel.
   The display shows `Select a Macro`.



2. Within 3 seconds press the M1, M2, M3 or M4 button corresponding to the Macro you want to use.
   The printer initializes the Values of the Macro (the display shows `Processing` ...).
   The basic screen then indicates the new current Macro.

The Macro at power-on is the current Macro when you power-off the printer.

Selecting Print Features

There are three possibilities to select the print features you need for a specific print task:

- By customizing a Macro.

  This allows you to alter the greatest number of print parameters. Within the Option list of the Macros, you can define:

  - the page layout (form dimensions, margins ...)
  - the publishing style (font, character set, character spacing, line spacing, contrast of the print-out ...)
  - the printer behavior (blank pages management, DEC mode management ...)

  See "**Customizing Macros**" for more details.

- By using a printer driver.

  This technique reduces the number of print parameters you can alter. Please note that the parameters available in the printer driver dialog boxes override the corresponding parameters of the printer Set-Up.

- By using the operator panel.

  This allows you to alter the font and the horizontal pitch using the corresponding buttons. See the following sections for details.

Selecting the Font

The Font button allows you to select one of the following resident fonts:

`Draft – Courier - Roman - Sans Serif - Prestige - Script - Orator - OCR-A - OCR-B`

You can also select the `SoftContrl` (Software Control) Value. Software Control means that the font that is used by the printer is defined through the commands of your software application. This message blinks alternately with the Font that will be used if the printer receives no software command.

To select a resident font:

1. Press the Font button.
2. Within 3 seconds press the Font button, until the desired font is displayed (keeping the button depressed displays the different fonts continuously).
   Three seconds after releasing the button, the display shows the basic screen again and the font is set.

If a font is selected using the Font button, it is locked and cannot be changed by software commands. The basic screen then shows the Lock symbol.

The font selection made using the Font button is canceled as soon as you power-off the printer.

To return to Software Control, press the Font button, until `SoftContrl` is displayed.

Selecting the Pitch

The Pitch button on the operator panel allows you to select different horizontal pitches according to the selected protocol. See "**Customizing Macros**" for the pitch values.

You can also select the `Soft.` (Software Control) Value. Software Control means that the pitch that is used by the printer is defined through the commands of your software application. This message blinks alternately with the Pitch that will be used if the printer receives no software commands.

To select a pitch:

1. Press the Pitch button
2. Within 3 seconds press the Pitch button, until the desired pitch is displayed (keeping the button depressed displays the different pitches continuously).
   Three seconds after releasing the button, the display shows the basic screen again and the pitch is set.

If a pitch is selected using the Pitch button, it is locked and cannot be changed by software commands. The basic screen then shows the Lock symbol.

The pitch selection made using the Pitch button is canceled as soon as you power-off the printer.

To return to Software Control, press the Pitch button, until `Soft.` is displayed.

Holding a Print Task

To hold printing temporarily:

- Press the Pause button.
  The Ready indicator blinks, indicating that there are still data to be printed. The paper moves according to the settings of the `TEAR/VIEW MODE` Option.

To resume printing:

- Press the Pause button again.

Reducing the Print Noise Level

To print with a reduced noise level (Quiet mode).

- Press the Quiet button.
  The display shows `Quiet` instead of the current printer state.

To return to Normal mode:

- Press the Quiet button again.
  The display shows the printer state that was active before pressing the Quiet button.

Recovering from a Fault State

Recovering from a Paper out Fault

If the printer is out of paper, the Fault and Ready indicators are lit and the display shows the `Load X` message, where `X` is the current Paper Path.

1. Make sure that paper is loaded in the current paper path.
2. Press the FF/Load button.
   The display shows `Loading paper...` and paper is loaded.

If no paper is installed in the current Paper Path, see "Paper Handling" for the paper installation procedure.

Recovering from other Faults

To recover from any other Fault state:

1. Remove the cause of the Fault state.
2. Press the Pause button, to clear the Fault state.

It may happen, that two Fault states occur at the same time. In this case press the Pause button repeatedly, until both of them are cleared.

Printing

Print Area Definition

For the correct definition of the print area, customize the printer Set-Up Macros according to your needs.

The corresponding Options are the following:

- FORM LENGTH
- LEFT MARGIN
- FORM WIDTH
- TOP MARGIN
- BOTTOM MARGIN
- TOP OF FORM

See "**Customizing Macros**" for a complete description of these Options.

Print Area Definition

- ToF (Top of Form) :
  This value defines the distance between the edge of the paper and the place where you allow the printing to begin (position of Line #1). You can adjust this distance according to the condition of your paper (for example pre-printed forms). When you load the paper, the printer feeds the paper so that the print head faces Line #1, waiting for printing commands.

- L (Form Length):
  Set the Option (`FORM LENGTH`) according to the actual physical page length (the distance between two perforations for continuous forms). This will allow the printer to know exactly where the print head is and to position it at the same position when a form feed occurs.

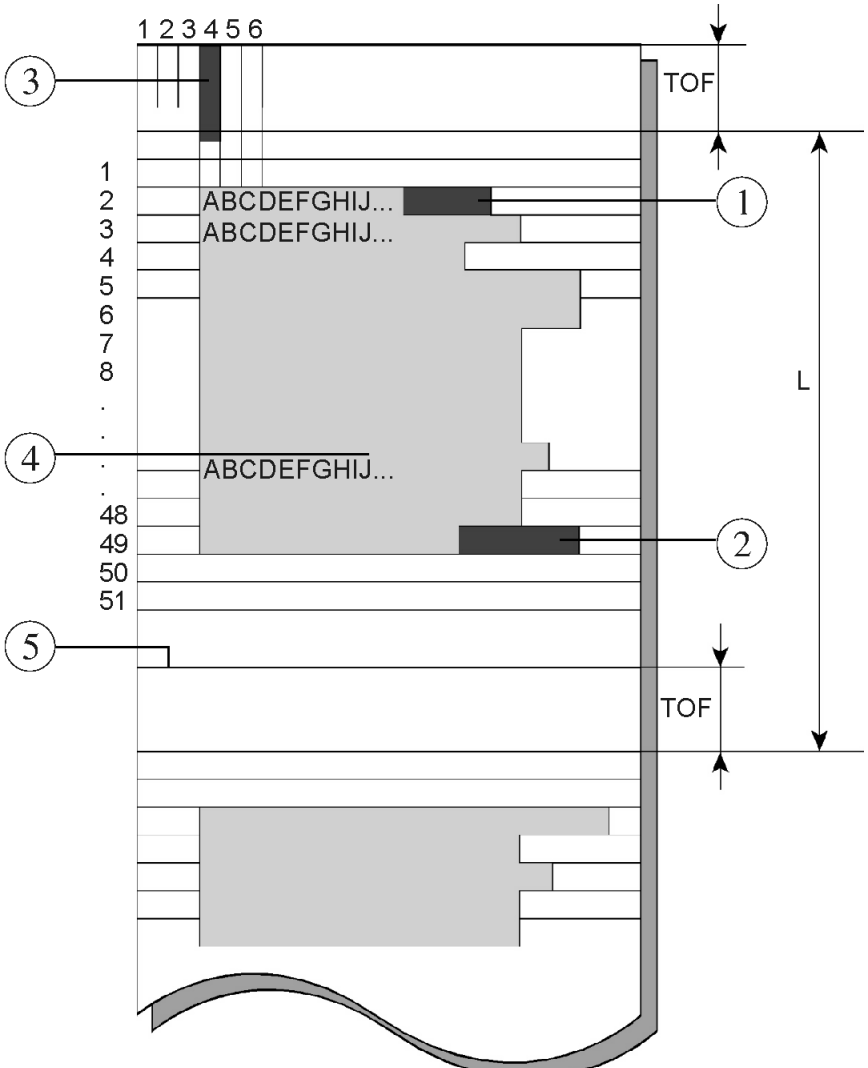
- Top line ①:
  This is the line where the printing actually starts. To define a top margin, select the number of this line. Example: In the following picture `TOP MARGIN` Option is set to 3.

- Bottom line ②:
  This is the line where the printing actually stops. To define a bottom margin, select the number of this line. Example: In the following picture `BOTTOM MARGIN` Option is set to 50.

- Left column ③:
  This is the column where the printing actually starts. To define a left margin, select the number of this column. Example: In the following picture `LEFT MARGIN` Option is set to 4.

- Print area ④:
  Print area defined by the corresponding Macro Options: `FORM LENGTH`, `TOP OF FORM`, `TOP MARGIN` and `BOTTOM MARGIN`.

- Paper perforation ⑤:
  The perforation defines the physical page length.


1 2 3 4 5 6
3
TOF
1
2
3
4
5
6
7
8
.
.
.
.
48
49
50
51
ABCDEFGHIJ...
ABCDEFGHIJ...
ABCDEFGHIJ...
1
2
4
5
L
TOF

Printing on Multipart Form

Once you have decided which paper format you are using, you can start sending the print tasks. The printer loads the paper in the current paper path as soon as it receives data.

If you are using application software, which uses the printer driver to manage the print jobs, make sure that the Paper Format and the Print Area match the paper installed on the printer.

Adapting to Paper Thickness

For good print quality and correct paper feeding, you should adapt the print impact strength and the print gap to the paper thickness. Your printer is factory set to adjust automatically, as it allows you to get the best printing results in most cases without any intervention. Select one of the other values only for special print tasks.

Two Macro menu Options are available to adapt the printer to specific paper thickness.

- The `PRINT GAP` Option defines the distance between the print head and the platen.
  - If you set the automatic adjustment (`Auto.adjust` Value) for the print gap the printer senses the paper thickness each time you load the paper and adjusts the gap accordingly. This is the factory setting, as it allows you to get the best printing results in most cases without any intervention. Select one of the other Values only for special print tasks. When you select this Value, set, if necessary, the corresponding `AUTO.GAP OFFSET` Option.
  - The print gap can also be set according to the number of parts of the paper (For X parts Values).
  - By setting the manual adjustment (`Manual adjust`. Value), you can adjust the print gap manually by using the print gap adjustment knob.

- The PRINT IMPACT Option gives you the possibility to choose between two print head impact strengths.
  - The factory setting Soft impact Value should be used for normal paper
  - The Strong impact Value should be used for multipart form in order to obtain good quality printing for all copies.

Hints on Printer Settings for Paper Thickness

Before starting the print job you should print some sample pages to test the print result of the different settings.

- Always set the PRINT IMPACT and the PRINT GAP Options to be compatible.
  For example, if you set the For 5 parts Value for the PRINT GAP Option and you do not set the PRINT IMPACT Option to Strong impact, you may not have satisfactory print quality on the last part of the multipart form.
- Avoid printing with Strong impact strength on thin paper. This could damage the paper and the platen.
- The Manual adjust. Value of the PRINT GAP Option does not allow very precise print gap adjustment and should be used only for special paper, when other settings have not produced satisfactory results.

For more details about the paper thickness setting, see the section "Setting the Printing Modes" in "Customizing Macros".

Managing Blank Pages

Thanks to the Tear/View mode feature for advancing paper for tear off, your printer allows you to save paper by removing unnecessary blank pages between print jobs.

To remove unnecessary blank pages:

- Select the `Removed` Value for the `BLANK PAGES` Macro Option.

To preserve blank pages voluntarily inserted within a print task:

- Select the `Preserved` Value for the `BLANK PAGES` Macro Option.

Printing on Pre-printed Forms

When printing on Pre-printed forms, you may need to reposition the paper in order to align the printout with the predefined areas on the paper. This operation is performed by adjusting the Top of Form Value (see the Top of Form definition in the section" **Print Area Definition**").

You can access the Top of Form setting, either in the Macro Option List in Set-Up mode or simply from the operator panel. The operator panel allows you to modify the Top of Form setting either temporarily or permanently.

Adjusting the Top of Form from the Operator Panel

Adjusting the Top of Form from the Operator Panel affects the current Macro setting if you decide to permanently save your setting.

Proceed as follows:

1. Press the *Set-Up* button.
2. Press the *Top of Form* button. The printer loads the paper in the current paper path. The display shows the current Top of Form value.
3. Press the ↑ or ↓ button to move the paper position respectively up or down in steps of 1/60 inch. The new Top of Form value appears on the display.
4. When the desired setting is reached:
   - to temporarily save the Top of Form Value, press the Exit button
   - to permanently save the Top of Form Value, press the *Sel/Save* button.

The paper moves back to its previous position.

To reset the Top of Form Value:

- If you want to quickly reset the Top of Form Value to 0/60 inch, press the *Top of Form* button during the procedure described above.
  The paper moves to the corresponding Top of Form Value, then returns to its previous position.

Configuring Your Printer

What is Configuration?

Configuration is the whole set of parameters that define the printer usage characteristics such as communication interface, protocol, fonts, paper path etc. Configuring your printer is necessary to make it operate and communicate properly with your hardware and software. You access the Configuration using Set-Up mode. Set-Up mode provides seven configuration Functions:

- MACROS
  This Function lets you customize the four Macros, which are designed to quickly adapt your printer to different kinds of print tasks.
- INSTALLATION
  This Function contains generic parameters such as the language used for the display.
- INTERFACE
  This Function lets you define the interface type and set the communication characteristics.
- TEST/HEX-DUMP
  This Function is dedicated for testing your printer with the self test or switching to hex-dump mode.
- USER ACCESS
  This Function defines the access authorization to the Set-Up Options.
- USER ADJUSTMENTS
  This Function allows fine adjustment of all the mechanical parameters, such as the print gap, the position of the first printable line etc.
- SAVE
  This Function allows you to manage your configuration in the section "**How to configure your Printer**" later in this chapter.

The Configuration Structure

The Set-Up Configuration contains seven Functions, which group specific Options. The Options, if necessary, are broken down into other Sub-options. The selectable parameters defining the Options or Sub-options are called Values. The following is an example of part of the Configuration structure.

Function Level	Options Level	Sub-options Level	Values Level
Macro	Protocol	Protocol-Serial	DEC PPL2
			IBM XL24E
			EPSON ESC/P
		Protocol-Parallel	DEC PPL2
			IBM XL24E
			EPSON ESC/P
	Font		Draft
			Courier
			...
	Vertical Pitch		2 lpi
			1 lpcm
			...

In the above table, the Protocol Option has two Sub-options: Protocol-Serial and Protocol-Parallel. You have to choose one of these Sub-options to access the selectable values. The Font and the Vertical Pitch have not Sub-options: you access to the selectable Values directly.

Display Graphic Conventions

To allow you to recognize the kind of item that appears on the printer display, the following graphic conventions apply:

Display Sample	Convention	Meaning
MACRO	Uppercase	This convention applies to Functions, Options and Sub-options (all non-selectable items).
* English	Lower case with initial cap * symbol for the current/selected Value	This convention applies to the selectable Values and to the executable Values

There are two types of values:

- **the selectable Values which are parameters that alter the printer Configuration**
- **the executable Values which generate immediate operations**

The Different Types of Selectable Values

Three types of selectable Values have been defined, according to how they are saved.

Value Type	Meaning
Factory	These are the Values that are set at the factory. You can recall them for the entire Configuration using the SAVE Option.
Power-on	These are the values that are active when powering-on the printer. They are active when you permanently save your changes by pressing the *Sel/Save* button.
Current	These are the values that are active at a given time and that are lost when you power-off the printer. They are active when you temporarily save your changes by pressing the Exit button, or by modifying corresponding Values at the operator panel.

Configuration Quick Reference

See the following pages to know the Functions, Options, Sub-options and Values defining the entire Configuration.

Macros

Installation

Interface

Test/Hex-Dump

User Access

User Adjustments

Save

In the Value list, the Factory setting is shown in bold.

Macros

Macro 1
Macro 2
Macro 3
Macro 4

Test/Hex-Dump

Self-Test
Hex-Dump Mode
Enable Hex-D.
Disable Hex-D.

User Adjustments

Bidi. Alignment
Offset: X
Line #1 – Front1
X/60 inches
Line #1 – Front2
X/60 inches
Tear-Perfo Align
X/60 inches

Installation

Language
Error Buzzer
Ribbon Type
Path at Power-on

User Access

All Functions
Macros
Test/Hex-Dump
Minimum

Save

Save Config.
Restore Macro X
Rest.all Macros
Recall Factory

Interface

Interface Type
I/F Time-out
Input Buffer
Parallel Mode
AUTOFEED Signal
SLCT-IN Signal
Word Length
Baud Rate
Parity Bit
Buffer Control
Robust XON

Macro 1/2/3/4 1/3

Protocol

Protocol Serial
DEC PPL2
EPSON ESC/P
IBM XL24
Protocol Paral.
DEC PPL2
EPSON ESC/P (M1/M3)
IBM XL24E (M2/M4)

Font

Draft
Courier
Roman
SansSerif
Prestige
Script
Orator
OCR-A
OCR-B

Vertical Pitch

2 lpi
3 lpi
4 lpi
6 lpi
8 lpi
10 lpi
12 lpi
1 lpcm
2 lpcm
4 lpcm

Form Length (cont.)

3 inches
3.5 inches
4 inches
5.5 inches
6 inches
7 inches
8 inches
8.5 inches
11 inches (A)

Form Length (cont.)

A4 (11.5 inches)
12 inches
14 inches
15 inches
Number of Lines
X lines (1 to 256)

Form Width

8 inches
13.2 inches
13.6 inches

Top Margin

Line #X (**1**)

Bottom Margin

Line #X (**66**)

Left Margin

Column #X (**1**)

Top of Form

0/60 inches

(0/60” to 127/60”)

Paper Path

Push-Front1

Push-Front2

ASF1

ASF2

ASF3

Print Direction

Unidirectional

Bidirectional

Soft. Control

Line Mode

LF=LF, CR=CR

LF=LF+CR

CR=LF+CR

LF&CR=LF+CR

Blank Pages

Removed/ **Preserved**

Perfo. Anti-jam

Enabled / **Disabled**

Print Gap

Auto. adjust

For 1 part

For 2 parts

For 3 parts

For 4 parts

For 5 parts

For 6 parts

Manual adjust

Auto Gap Offset

0 (-8 to +8)

Print Impact

Soft impact

Strong impact

Tear/View Mode

Auto.advance 1s

Auto.advance 2s

Auto.advance 3s

Auto.advance 4s

Auto.advance 5s

Manual advance

No tear/reverse

DEC Mode

Horizontal Pitch

G0 Character Set

User Pref.C-Set

Wrap vs. Truncate

Printer ID

Disconnect./EOT

Init. Report

Auto. ANSWERBACK

ANSWERBACK/ENQ

Macro 1/2/3/4 2/3

IBM Mode	EPSON Mode
Horizontal Pitch	Horizontal Pitch
IBM C-Set	National C-Set
Code Page	Code Page
IBM Dbl. Height	EPSON C-Set
IBM AGM	Slashed Zero
Pitch/COMPRESS	
Slashed Zero	

Installation

Language	Error Buzzer	Ribbon Type
English	**1 beep**	**Black**
Deutsch	3 beeps	Color
Español	Continuous beep	
Français	No beep	**Path at Power-on**
Italiano		**From Macro**
		Last sel. Path

DEC Mode		**1/2**
Horizontal Pitch	**User Pref. C-Set** (cont.)	**G0 Character Set** (cont.)
5 cpi	DEC Hebrew Sup.	JIS Roman
6 cpi	DEC Greek Sup.	DEC Norw./Dan.
6.6 cpi	DEC 7Bit Turk.	ISO Spanish
8.25 cpi	DEC 7Bit Sup.	DEC Swedish
8.55 cpi	JIS Katakana	Norw./Danish
9 cpi	ISO Latin-1	DEC Dutch
10 cpi	ISO Latin-2	DEC Swiss
12 cpi	ISO Latin-5	DEC Portuguese
13.2 cpi	ISO Latin-Hebrew	Legal
15 cpi	ISO Latin-Greek	DEC Supplement.
16.5 cpi	ISO Latin-Cyril.	DEC Spec.Graph.
17.1 cpi	ISO Latin-9	DEC Technical
18 cpi		DEC 7Bit Hebrew
20 cpi	**G0 Character Set**	DEC Hebrew Sup.
Prop. Spacing	**US ASCII**	DEC Greek Sup.
	British	DEC 7Bit Turk.
User Pref. C-Set	DEC Finnish	DEC Turk. Sup.
DEC Supplement.	French	JIS Katakana
DEC Spec.Graph.	DEC French-Can.	
DEC Technical	German	
DEC 7Bit Hebrew	ISO Italian	

DEC Mode		**2/2**
Wrap vs Truncate	**Disconnect./EOT**	**ANSWERBACK/ENQ**
Wrap	**Disabled/** Enabled	**Disabled/** Enabled
Truncate		
	Init. Report	
Printer ID	**Disabled/** Enabled	
PPL2		
LA120ID	**Auto.ANSWERBACK**	
LA210ID	**Disabled/** Enabled	

IBM Mode		**1/2**
Horizontal Pitch	**Code Page**	**Code Page** (cont.)
10 cpi	Code Page 210	Code Page 860
12 cpi	Code Page 220	Code Page 861
17.1 cpi	**Code Page 437**	Code Page 862
20 cpi	CP 437 Greek	Code Page 863
Prop.Spacing	Code Page 850	Code Page 864
	Code Page 852	Code Page 865
IBM C-Set (1/2)	Code Page 853	Code Page 866
IBM set 1	Code Page 855	Code Page 869
IBM set 2	Code Page 857	Abicomp
	Code Page 858	Brazilian ASCII

IBM Mode		**2/2**
Code Page (cont.)	**IBM Dbl. Height**	**Pitch/COMPRESS**
Mazowian	**Disabled**	**17.1 cpi**
Code MJK	Enabled	20 cpi
Bulgarian		
ISO 8859-7	**IBM AGM**	**Slashed Zero**
ISO 8859-15	**Disabled**	**No**
ISO Latin 1T	Enabled	Yes
New Hebrew		
D-Hebrew		

EPSON Mode		**1/2**
Horizontal Pitch	**National C-Set (1/2)** (cont.)	**National C-Set (1/2)** (cont.)
10 cpi	United Kingdom	Turkey
12 cpi	Denmark 1	Korea
17.1 cpi	Sweden	Legal
20 cpi	Italy	Old Hebrew
Prop. Spacing	Spain 1	
	Japan	**Code Page**
National C-Set (1/2)	Norway	Code Page 210
USA	Denmark 2	Code Page 220
France	Spain 2	**Code Page 437**
Germany	Latin America	CP 437 Greek

EPSON Mode		**2/2**
Code Page (cont.)	**Code Page** (cont.)	**Code Page** (cont.)
Code Page 850	Code Page 864	ISO 8859-15
Code Page 852	Code Page 865	ISO Latin 1T
Code Page 853	Code Page 866	New Hebrew
Code Page 855	Code Page 869	D-Hebrew
Code Page 857	Abicomp	
Code Page 858	Brazilian ASCII	**EPSON C-Set**
Code Page 860	Mazowian	**Graphic**
Code Page 861	Code MJK	Italic
Code Page 862	Bulgarian	
Code Page 863	ISO 8859-7	**Slashed Zero**
		No/ Yes

Interface		
Interface Type	**AUTOFEED Signal**	**Baud Rate** (cont.)
Automatic	**Disabled/** Enabled	4800 bps
Parallel		**9600 bps**
Serial	**SLCT-IN Signal**	19200 bps
	Disabled/ Enabled	38400 bps
Interface Time-out		
2 seconds	**Discon.on Fault**	**Parity Bit**
(2 to 30 seconds)	**No discon.**	**None**
	Yes (DTR drop)	Even
Input Buffer	Yes (DTR pulse)	Odd
1 K		
8 K	**Word Length**	**Buffer Control**
16 K	**8 bit**	**XON/XOFF**
32 K	7 bit	XON/XOFF+DTR
64 K		DTR
	Baud Rate	
Parallel Mode	600 bps	**Robust XON**
Bidirectional	1200 bps	**No**
Centro	2400 bps	Yes

How to configure your Printer

Reaching, Selecting, Saving a Configuration Value

When you press the *Set-Up* button, the printer enters Set-Up mode allowing you to navigate within the Configuration structure. Use the Arrows buttons to move around in the structure.

Reaching a Configuration Item

Button	Purpose
↑ ↓	To switch from an item level to another (upwards or downwards).
→ ←	Within the same level, to switch from an item to another (forwards or backwards).

Selecting a Configuration Value

When you reach a Value (selectable or not), press the *Sel/Save* button to select it or to perform the corresponding action.

Saving the new Configuration

When you have finished selecting the Values, press the Exit button. The display shows `Save Config`.

- To permanently save all the changes you made, press the *Sel/Save* button.
  All your changes become the power-on Values for the entire Configuration.

- To temporarily save the changes made for the current Macro only, press the Exit button.
  The changes made for the current Macro only become its current Values. (Column `CURRENT VALUES` of the Configuration Sheet).

Example Configuring

The following is an example Configuration procedure, in which we will alter the Factory settings: the font is changed from Draft to Orator and the horizontal pitch is changed from 10 cpi to 17.1 cpi in DEC protocol for Macro 2.

1. Press the *Set-Up* button to put the printer in Set-Up mode.
   `MACROS` is displayed.
2. Press the ↓ button.
   The display shows `MACRO 1`.
3. Press the → button.
   The display shows `MACRO 2`.
4. Press the ↓ button.
   The display shows `PROTOCOL`.
5. Press the → button until `FONT` is displayed.
6. Press the ↓ button.
   The display shows `* Draft`.
7. Press the → or ← button, until the display shows `Orator`.
8. Press the *Sel/Save* button to select this font.
   An asterisk is displayed to indicate that the Value has been selected.
9. Press the ↑ button to return to the Options level.
   The display shows `FONT`.
10. Press the → or ← button, until the display shows `DEC MODE`.
11. Press the ↓ button to pass over to the value setting for the DEC defaults, the display shows `HORIZONTAL PITCH`.

12. Press the ↓ button.
    The display shows `10 cpi`.
13. Press the → or ← button, until the display shows `17.1 cpi`.
14. Press the *Sel/Save* button to select the horizontal pitch.
    An asterisk is displayed to indicate that the value has been selected.
15. Press the Exit button. The display shows `Save config.`.
16. To permanently save your changes, press the *Sel/Save* button.
    The display shows `Processing...`, indicating that the parameters are copied in the printer memory.

Printing the Printer Configuration

To check the values set in the printer Configuration, proceed as follows:

- Press the *Set-Up* button.
- Press the *Print* button.
  The printer prints the current printer Configuration.

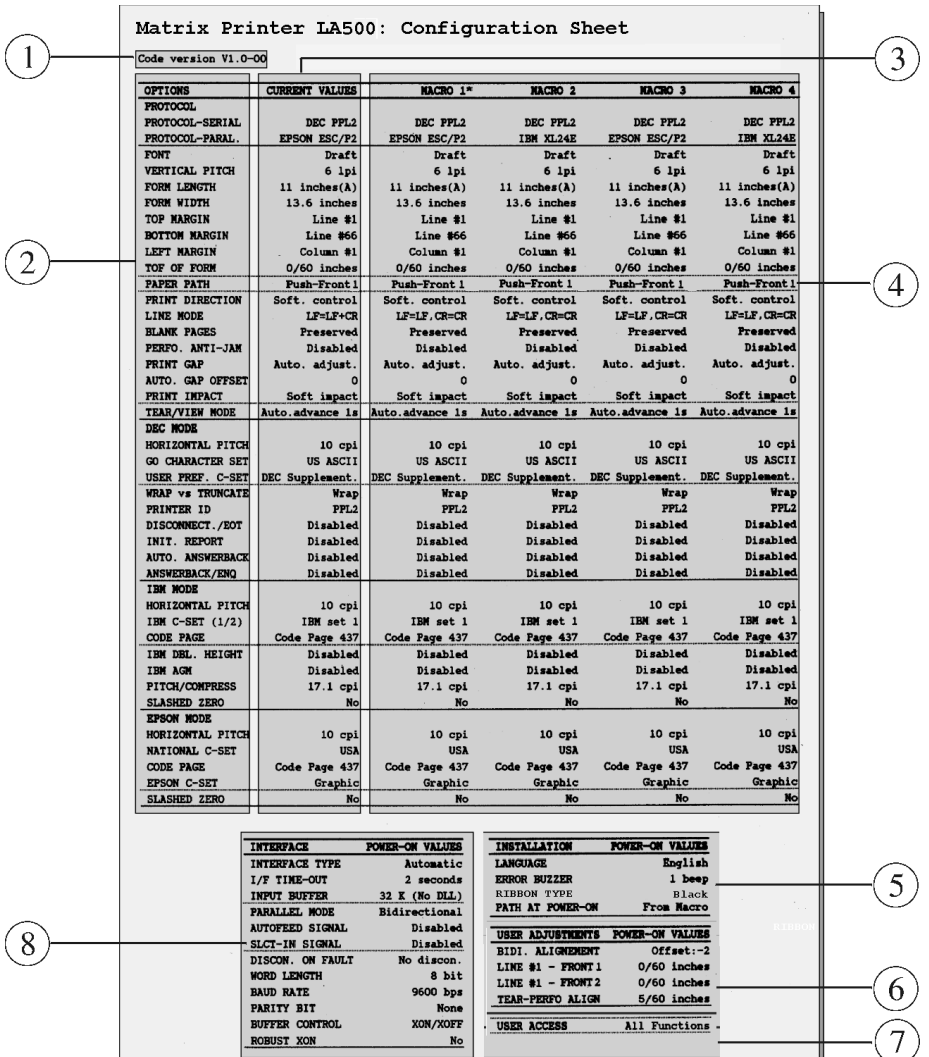
See the figure on the next page

Values that are not applicable are printed in italic style.

Depending on specific interdependent settings, `Programmed` may be printed instead of a numeric value.

Tips for Configuring

- First print the Configuration Sheet to see the current settings.
- Once you are familiar with the Arrow button functions, use the Configuration Quick Reference to quickly reach the items you need.



Matrix Printer LA500: Configuration Sheet

① Code version V1.0-00

OPTIONS	CURRENT VALUES	MACRO 1*	MACRO 2	MACRO 3	MACRO 4
PROTOCOL					
PROTOCOL-SERIAL	DEC PPL2	DEC PPL2	DEC PPL2	DEC PPL2	DEC PPL2
PROTOCOL-PARAL.	EPSON ESC/P2	EPSON ESC/P2	IBM XL24E	EPSON ESC/P2	IBM XL24E
FONT	Draft	Draft	Draft	Draft	Draft
VERTICAL PITCH	6 lpi	6 lpi	6 lpi	6 lpi	6 lpi
FORM LENGTH	11 inches(A)	11 inches(A)	11 inches(A)	11 inches(A)	11 inches(A)
FORM WIDTH	13.6 inches	13.6 inches	13.6 inches	13.6 inches	13.6 inches
TOP MARGIN	Line #1	Line #1	Line #1	Line #1	Line #1
BOTTOM MARGIN	Line #66	Line #66	Line #66	Line #66	Line #66
LEFT MARGIN	Column #1	Column #1	Column #1	Column #1	Column #1
TOF OF FORM	0/60 inches	0/60 inches	0/60 inches	0/60 inches	0/60 inches
PAPER PATH	Push-Front 1	Push-Front 1	Push-Front 1	Push-Front 1	Push-Front 1
PRINT DIRECTION	Soft. control	Soft. control	Soft. control	Soft. control	Soft. control
LINE MODE	LF=LF+CR	LF=LF,CR=CR	LF=LF,CR=CR	LF=LF,CR=CR	LF=LF,CR=CR
BLANK PAGES	Preserved	Preserved	Preserved	Preserved	Preserved
PERFO. ANTI-JAM	Disabled	Disabled	Disabled	Disabled	Disabled
PRINT GAP	Auto. adjust.	Auto. adjust.	Auto. adjust.	Auto. adjust.	Auto. adjust.
AUTO. GAP OFFSET	0	0	0	0	0
PRINT IMPACT	Soft impact	Soft impact	Soft impact	Soft impact	Soft impact
TEAR/VIEW MODE	Auto.advance 1s	Auto.advance 1s	Auto.advance 1s	Auto.advance 1s	Auto.advance 1s
DEC MODE					
HORIZONTAL PITCH	10 cpi	10 cpi	10 cpi	10 cpi	10 cpi
GO CHARACTER SET	US ASCII	US ASCII	US ASCII	US ASCII	US ASCII
USER PREF. C-SET	DEC Supplement.	DEC Supplement.	DEC Supplement.	DEC Supplement.	DEC Supplement.
WRAP vs TRUNCATE	Wrap	Wrap	Wrap	Wrap	Wrap
PRINTER ID	PPL2	PPL2	PPL2	PPL2	PPL2
DISCONNECT./EOT	Disabled	Disabled	Disabled	Disabled	Disabled
INIT. REPORT	Disabled	Disabled	Disabled	Disabled	Disabled
AUTO. ANSWERBACK	Disabled	Disabled	Disabled	Disabled	Disabled
ANSWERBACK/ENQ	Disabled	Disabled	Disabled	Disabled	Disabled
IBM MODE					
HORIZONTAL PITCH	10 cpi	10 cpi	10 cpi	10 cpi	10 cpi
IBM C-SET (1/2)	IBM set 1	IBM set 1	IBM set 1	IBM set 1	IBM set 1
CODE PAGE	Code Page 437	Code Page 437	Code Page 437	Code Page 437	Code Page 437
IBM DBL. HEIGHT	Disabled	Disabled	Disabled	Disabled	Disabled
IBM AGM	Disabled	Disabled	Disabled	Disabled	Disabled
PITCH/COMPRESS	17.1 cpi	17.1 cpi	17.1 cpi	17.1 cpi	17.1 cpi
SLASHED ZERO	No	No	No	No	No
EPSON MODE					
HORIZONTAL PITCH	10 cpi	10 cpi	10 cpi	10 cpi	10 cpi
NATIONAL C-SET	USA	USA	USA	USA	USA
CODE PAGE	Code Page 437	Code Page 437	Code Page 437	Code Page 437	Code Page 437
EPSON C-SET	Graphic	Graphic	Graphic	Graphic	Graphic
SLASHED ZERO	No	No	No	No	No

INTERFACE	POWER-ON VALUES
INTERFACE TYPE	Automatic
I/F TIME-OUT	2 seconds
INPUT BUFFER	32 K (No DLL)
PARALLEL MODE	Bidirectional
AUTOFEED SIGNAL	Disabled
SLCT-IN SIGNAL	Disabled
DISCON. ON FAULT	No discon.
WORD LENGTH	8 bit
BAUD RATE	9600 bps
PARITY BIT	None
BUFFER CONTROL	XON/XOFF
ROBUST XON	No

INSTALLATION	POWER-ON VALUES
LANGUAGE	English
ERROR BUZZER	1 beep
RIBBON TYPE	Black
PATH AT POWER-ON	From Macro

USER ADJUSTMENTS	POWER-ON VALUES
BIDI. ALIGNEMENT	Offset:-2
LINE #1 - FRONT 1	0/60 inches
LINE #1 - FRONT 2	0/60 inches
TEAR-PERFO ALIGN	5/60 inches

USER ACCESS	All Functions

② Macro Option List

③ Current Values of the current Macro

④ Macros (the asterisk in the title bar identifies the current Macro)

⑤ Power-on Values of the INSTALLATION Function

⑥ Power-on Values of the USER ADJUSTMENTS Function

⑦ Power-on Value of the USER ACCESS Function

⑧ Power-on Values of the INTERFACE Function

How to manage your Configuration

The SAVE Function allows you to manage your printer Configuration.

Function	Executable Values
SAVE	Save Config.
	Restore Macro X
	Rest.all Macros
	Recall Factory

You scroll the Values pressing the → or ← button.

Saving a Configuration

When you have finished selecting the Values, press the Exit button. The display shows Save Config.

- To permanently save all the changes you made, press the *Sel/Save* button.
  All your changes become the power-on Values for the entire Configuration.
  The display shows Processing. . ., then the basic screen appears.
- To temporarily save the changes made for the current Macro only, press the Exit button.
  The changes made for the current Macro only become its current Values. (Column CURRENT VALUES of the Configuration Sheet).

Restoring a Macro

To overwrite the current Values of the current Macro with the corresponding power-on Values, display `Restore Macro X` and press the *Sel/Save* button.

The display shows `Processing...`, then the basic screen appears.

Restoring all Macros

To overwrite the current Values of all the Macros with the corresponding power-on Values, display `Rest.all Macros` and press the *Sel/Save* button.

The display shows `Processing...`, then the basic screen appears.

Recalling the Factory Configuration

To overwrite the Power-on Values of the entire Configuration with the corresponding Factory Values, display `Recall Factory` and press the *Sel/Save* button.

The display shows `Processing...`, then the basic screen appears. This operation then generates a Macro 1 restore.

Setting the Printer Installation

The installation Values are generally set once when the printer is integrated within its operating environment. The settings concern the printer hardware Configuration and the communication parameters. Use the INSTALLATION Function to alter these parameters.

Factory settings are shown in bold.

LCD Language

The printer display messages are available in five languages: English, German, Spanish, French and Italian. In the INSTALLATION Function select the LANGUAGE Option to set the desired language.

Value	Definition
English	English language.
Deutsch	German language.
Español	Spanish language.
Français	French language.
Italiano	Italian language.

Error Buzzer

The ERROR BUZZER Option defines the buzzer behavior in Fault state.

Value	Definition
1 beep	The buzzer beeps once.
3 beeps	The buzzer beeps three times.
Continuous beep	The buzzer beeps continuously, until the printer exits the Fault state.
No beep	The buzzer does not sound.

Ribbon Type

The RIBBON TYPE Option defines the ribbon used with the printer.

Value	Definition
Black	The black ribbon is used.
Color	The color ribbon is used.

Paper Path at Power-On

The PATH AT POWER-ON Option allows you to decide which path you want to be selected, when the printer is powered-on.

Value	Definition
Last sel. Path	The paper path at power-on is the one that was selected before the printer was powered off.
From Macro	The path at power-on is the one from the current Macro.

Setting the Communication Interface

The communication parameters of your printer are grouped under the INTERFACE Function. These settings must match those of the host with which you want to communicate. It is necessary to know the host settings before selecting values for the printer interface.

Factory settings are shown in bold.

Interface Type

Determines the type of interface to be used.

Value	Definition
Parallel	The parallel interface only is enabled
Serial	The serial interface only is enabled.
Automatic	Both interfaces are enabled. The printer switches automatically to the proper interface type, according to the activated port. If you select this value, adjust the I/F TIME-OUT Option accordingly.

Interface Time-out

The I/F TIME-OUT Option allows you to define the duration after which the interface switches back to the Stand-by state, when the printer stops receiving data.

Value	Definition
2 seconds ... 30 seconds	Interface time-out of the corresponding duration.

Input Buffer Size

The INPUT BUFFER Option allows you to set the input buffer size. The down line loading of characters is always available.

Value	Definition
1 K	1 KByte input buffer.
8 K	8 KByte input buffer.
16 K	16 KByte input buffer.
32 K	32 KByte input buffer.
64 K	64 Kbyte input buffer.

Setting the Parallel Interface

Parallel Mode

The PARALLEL MODE Option allows you to determine the type of data exchange between the printer and the host for the parallel interface.

Value	Definition
Bidirectional	The parallel interface uses the IEEE 1284 bidirectional standard mode. Select this Value to take advantage of the Plug and Play feature of Windows 95/98/2000®.
Centro	The parallel interface uses a Centronics monodirectional standard mode.

AUTOFEED Signal

The AUTOFEED SIGNAL Option allows you to determine if the parallel interface ignores the AUTOFEED signal or not.

Value	Definition
Disabled	The parallel interface ignores the AUTOFEED signal.
Enabled	The parallel interface uses the AUTOFEED signal.

SELECT-IN Signal

The SLCT-IN SIGNAL Option allows you to determine if the parallel interface ignores the SELECT-IN signal or not.

Value	Definition
Disabled	The parallel interface ignores the SELECT-IN signal.
Enabled	The parallel interface uses the SELECT-IN signal.

Setting the Serial Interface

Disconnection on Fault

The DISCON. ON FAULT Option defines the DTR line behavior for any fault condition detected by the printer.

Value	Definition
No discon.	The DTR line does not change.
Yes (DTR drop)	The DTR line is dropped to low signal level.
Yes (DTR pulse)	The DTR line is pulsed to high signal level with a 5 sec pulse.

Word Length

The WORD LENGTH Option allows you to determine the data format.

Value	Definition
8 bit	The data are coded using 8 bit.
7 bit	The data are coded using 7 bit.

Baud Rate

The BAUD RATE Option allows you to set the transmission speed used for the communication between the printer and the host. Ensure that the Value matches your host settings.

Value	Definition
600 bps	600 bits per seconds.
1200 bps	1200 bits per seconds.
2400 bps	2400 bits per seconds.
4800 bps	4800 bits per seconds.
9600 bps	9600 bits per seconds.
19200 bps	19200 bits per seconds.
38400 bps	38400 bits per seconds.

Parity Bit

The PARITY BIT Option allows you to set the parity check type.

Value	Definition
Even	The even parity check is used.
Odd	The odd parity check is performed.
None	No parity check is performed.

Buffer Control

The BUFFER CONTROL Option determines the data flow control to the input buffer.

Value	Definition
DTR	The DTR control regulates the data flow to the input buffer using DTR-high/DTR-low voltage signals.
XON/XOFF	The XON/XOFF control codes are used to regulate the data flow.
XON/XOFF + DTR	Both the XON/XOFF and the DTR control codes are used to regulate the data flow.

Robust XON

The ROBUST XON Option allows you to determine if the printer repeatedly sends an XON code, while in Ready state. The setting of this Option is only applicable when the BUFFER CONTROL Option is set to XON/XOFF or XON/XOFF + DTR.

Value	Definition
No	No XON code sent.
Yes	XON code repeatedly sent.

Setting the User Access Authorization

The access to the printer Configuration can be protected in different ways.

The different values of the USER ACCESS Function affect both access to Set-Up mode and use of the operator panel. The following table shows the setting effects.

User Access Value	Set-Up Mode	Operator Panel
All Functions	You can access to all Set-Up items.	You can use all the operator panel buttons.
Macros	You can only access the MACROS and SAVE Functions.	You can use all the operator panel buttons.
Test/Hex-Dump	You can only access the TEST/HEX-DUMP Option.	You can use all the operator panel buttons.
Minimum	No access to the Set-Up items is possible. When pressing the *Set-Up* button, the display shows Press Park.	You can only use the *Park*, LF, FF/Load and Pause buttons.

Customizing Macros

How to Customize a Macro

Your printer allows you to use four sets of pre-determined parameters called Macros. You can alter the factory settings of the Macro Options and customize them as explained in this chapter.

For more information about the use of the Macros, see "Operating Your Printer".

In this chapter, Factory settings are shown in bold.

You access the following options using the MACRO Function and the corresponding MACRO X Option in Set-Up mode.

Selecting the Protocol

You have to set the printer protocol for the interface you use to communicate with your host.

You must first select the interface for which you want to select the protocol. The following Sub-options are available for the PROTOCOL Option:

Sub-option	Definition
PROTOCOL-SERIAL	Sets the communication protocol for the serial interface.
PROTOCOL-PARAL.	Sets the communication protocol for the parallel interface.

For each of the interfaces, you can then select one of the following protocols:

Value	Definition
DEC PPL2	Sets the DEC PPL2 protocol to communicate with Digital or ANSI-compatible host software. This is the Factory setting when using the serial protocol.
IBM XL24E	Sets the IBM Proprinter XL24E protocol to communicate with host software. This is the Factory setting for Macro 2 and 4 when selecting the parallel protocol.
EPSON ESC/P	Sets the EPSON ESC/P protocol to communicate with host software. This is the Factory setting for Macro 1 and 3 when selecting the parallel protocol.

Setting the Publishing Style

Font

The FONT Option determines the typeface of the printed characters.

Value	Definition
Draft	Draft font.
Courier	Courier font.
Roman	Roman font.
Sans Serif	Sans Serif font.
Prestige	Prestige font.
Script	Script font.
Orator	Orator font.
OCR-A	OCR-A font.
OCR-B	OCR-B font.

Vertical Pitch

The vertical pitch determines the density with which the lines are printed.

The VERTICAL PITCH Option allows you to select this density according to different units:

- Lines printed per inch (lpi): 2, 3, 4, 6, 8, 10 or 12 lpi
- Line per centimeter (lpcm): 1, 2 or 4 lpcm (lines per centimeter).

Each time you change the value of the VERTICAL PITCH Option:

- **The TOP MARGIN Option is set to Line #1**
- **The BOTTOM MARGIN Option is set to the maximum Value according to the formula:**

Bottom margin (Line #X) = Form length (inches x Vertical pitch (lpi)

OR

Bottom margin (Line #X) = Form length (number of lines).

Setting the Page Layout

For correct paper feeding, you must tell your printer which paper format you loaded into the printer and which area you want to define for printing.

Form Length

The FORM LENGTH Option allows you to set the physical form length in inches or in number of lines. Even if the logical definition of the form length changes according to interdependent Option settings, the Value of the FORM LENGTH Option is not altered as a result. It is only altered by software command.

- The Factory setting for the FORM LENGTH Option is 11 inches (A) predetermined Value. The other predetermined Values in inches are: 3, 3.5, 4, 5.5, 6, 7, 8, 8.5, A4 (11.6 inches), 12, 14 or 15 inches.

Each time you change the form length using a predetermined Value:

- **The TOP MARGIN Option is set to Line #1**
- **The BOTTOM MARGIN Option is set to the maximum Value, according to the formula:**

Bottom margin (Line #X = Form Length (inches) x Vertical pitch (lpi)

(unit conversion is automatic if you define the vertical pitch unit as lpcm).

- The NUMBER OF LINES Sub-option gives you the possibility to define the logical form length as a number of lines. This length comes then from the following formula:
  Form length (inches) = Vertical pitch (lpi) x Number of lines
  (unit conversion is automatic if you define the vertical pitch unit as lpcm)

The maximum authorized form length is 21 inches.

The TOP MARGIN and BOTTOM MARGIN Options do not depend on the VERTICAL PITCH Option when you define the form length using the NUMBER OF LINES Sub-option.

Left Margin

The LEFT MARGIN Option is defined by the number of the columns (numbered from the left paper edge) where the printing actually starts. The values range between Column #1 and Column #272.

Form Width

The FORM WIDTH Option lets you set the correct page width in inches. The available values are 8, 13.2 and 13.6 inches. The Factory setting of the Value is **13.6 inches**.

The current value of the LEFT MARGIN Option is set to Column #1 each time you change the value of the HORIZONTAL PITCH Option. This new setting applies only for the corresponding protocol.

Top Margin

The TOP MARGIN Option lets you set the top margin with the number of the line (numbered from the top paper edge) where the printing actually starts.

The setting of this Option depends on the setting of both the VERTICAL PITCH and the FORM LENGTH Options (see the corresponding related sections in this chapter).
The Values range from Line #1 to the Value corresponding to the BOTTOM MARGIN setting.
Line #1 is the Factory setting of the Value.

Bottom Margin

The BOTTOM MARGIN Option gives you the possibility to set the bottom margin with the number of the line (numbered from the top paper edge) where the printing actually stops for a given page.

The setting of this Option depends on the setting of both the VERTICAL PITCH and the FORM LENGTH Options (see the corresponding related sections in this chapter).
The Values range from the Value for TOP MARGIN to the Value for FORM LENGTH.

Top of Form

The TOP OF FORM Option is used to set the Top of Form position. See the print area definition, in the "**Printing**" section. This Option is useful when printing on preprinted forms, where a precise positioning is required. The selectable Values range between 0/60 and 140/60 inches. The Factory setting is **0/60 inch**.

Selecting the Paper Path

You can set the PAPER PATH Option to select the paper path used with a given Macro. Remember that you can also select the paper path you want using the operator panel buttons.

This Option is available only if the PATH AT POWER-ON Option of the INSTALLATION Function is set to From Macro. See "Configuring Your Printer".

Value	Definition
Push-Front1	The paper is loaded using the tractor in Front1 position.
Push-Front2	The paper is loaded using the tractor in Front2 position (option).
ASF1, ASF2, ASF3	Paper is loaded from one of the available bins of the Automatic Sheet Feeder (option).

These settings are stored in the Macros. See also the PATH AT POWER-ON Option.

Setting the Printing Modes

Print Direction

The PRINT DIRECTION Option allows you to define the print direction when a line feed occurs.

Value	Definition
Unidirectional	The printing direction is the same each time. This setting may be necessary due to specific driver's compatibility.
Bidirectional	The print direction changes for each line feed. This setting gives the highest printing speed.
Soft. Control	The print direction depends on the software commands received by the printer.

The Unidirectional and the Bidirectional settings apply to both alphanumeric and graphics printing.

Line Mode

The LINE MODE Option defines printer behavior when receiving a carriage return or a line feed command in the following ways:

Value	Definition
LF=LF, CR=CR	When receiving a LF code, the printer executes only a line feed. When receiving a CR code, it executes only a carriage return.
LF=LF+CR	When receiving a LF code, the printer executes both a line feed and a carriage return.
CR=LF+CR	When receiving a CR code, the printer executes both a line feed and a carriage return.
LF&CR=LF+CR	When receiving a CR or a LF code, the printer executes both a line feed and a carriage return.

Blank Pages

The BLANK PAGES Option offers you another way to save paper. This Option tells the printer how to behave when receiving a form feed command that would cause a blank page:

Value	Definition
Removed	The printer does not perform form feeds that result in blank pages.
Preserved	The printer may perform form feeds that result in blank pages.

Print Impact

The PRINT IMPACT Option determines the strength of the print head needles impact. You can set this impact to a stronger impact, for example when printing on multipart form to ensure that all the copies you want to print are well printed.

Value	Definition
Soft impact	Sets the normal printing strength.
Strong impact	Strong impact of the print head needles. This setting is useful, when printing on multipart form.

For more information about the proper use of this option, see the section "Adapting to Paper Thickness" in "Printing".

Print Gap

The distance between the print head and the platen can be adjusted with the PRINT GAP Option as follows:

Value	Definition
Auto. adjust.	Automatic gap adjustment is performed. The print head adjusts the platen gap automatically according to the paper thickness each time you load paper into the printer or change the paper path.
For 1 part For 2 parts For 3 parts For 4 parts For 5 parts For 6 parts	The print gap is set according to the number of parts of your multipart paper.
Manual adjust.	The print gap is manually adjusted with the print gap selection knob. See the corresponding procedure below.

For more information about the proper use of this option, see the section "Adapting to Paper Thickness" in the "Printing" chapter.

How to Adjust the Print Gap Manually

If you select manual adjustment of the print gap, you have to use the print gap adjustment knob to set the distance between the print head and the platen.

To adjust the print gap manually:

1. Select the `Manual adjust`. Value for the `PRINT GAP` Option.
2. Save your changes and exit the Set-Up mode.
   The display shows `Print gap: Manual/Adjust print gap`.
3. Open the top cover.
   The print head automatically moves to the center, letting you access to the print gap adjustment knob behind and at the left of the left cartridge support. The print gap is set at the maximum.
4. Turn the print gap adjustment knob with your index finger to the back of the printer so that the markings appear.
5. Position the adjustment knob so that the marking, indicating a number of parts, is opposite the black plastic marker at its right.

Automatic Gap Offset

When selecting the `Auto adjust`. Value for the `PRINT GAP` Option, adjust the Value of the `AUTO.GAP OFFSET` Option according to your print out quality. Try different settings to get the expected print result.

The `AUTO.GAP OFFSET` Value is Factory set to 0. The Values range between -8 and +8.

Perforation Anti-jam

The PERFO. ANTI-JAM Option can be enabled for paper with especially large perforation which can cause paper jams. The use of this Option is necessary only for exceptional cases. For the paper specifications see "**Paper Handling**".

Value	Definition
Enabled	The print head is moved to the extreme right position when feeding paper over the perforation.
Disabled	The print head remains in the current position, when feeding the paper.

Setting the Tear/View Mode

The main purposes of the TEAR/VIEW MODE Option are the following:

- to allow you to automatically move the paper perforation to the tear bar (Tear-off position, #5) when a print task is completed.
- to allow you to automatically move the last printed line above the tear bar (Viewing position, #4) when putting the print task on hold (pressing the Pause button).

Depending on the print task definition, the printer state and the buttons you press, there are several ways to obtain the paper positions described above.

To take benefit of the highest automation level, set the TEAR/VIEW MODE Option to one of the Auto.advance Xs Values. The printer behavior matches the above definition.

See the section "**Paper Movements according to Tear/View Mode**" for all the cases corresponding to specific combinations of the TEAR/VIEW MODE Option setting, the button sequence and the type of print task. The paper positions that are mentioned in this section are described further in the section "**Paper Position Definition**".

Value	Definition
Auto.advance 1s Auto.advance 2s Auto.advance 3s Auto.advance 4s Auto.advance 5s	Setting one of these Values, the paper is automatically moved to the tear-off position after the specified timeout at the end of the print task (including a form feed command). Adjust the timeout according to the estimated time between data flow, in order to avoid inappropriate form feed.
Manual advance	This Value obliges you to use the buttons to move the paper to the desired position. For example, The paper is moved to the Viewing position, when pressing the Pause button.
No tear/reverse	Tear/View mode is disabled and no backward movements are performed.

Set the TEAR/VIEW MODE Option to the No tear/reverse Value to print on adhesive labels. This Value disables all backward movements and avoids any paper jams. Backward movements are automatically inhibited when using the Push+Pull paper path.

Paper Movements According to Tear/View Mode

The following shows the paper positions (identified by their definition number) and the corresponding printer state depending on: the print task, the Tear/View mode setting and the button sequence.

Automatic Advance Setting

	Print Job Completed		Currently Printing
	Without final <FF> **Position - State**	**With final <FF>** **Position - State**	**Position - State**
	4 - Ready after timeout	5 - Ready after timeout	Busy
1. Pause	4 - Pause	5 - Pause	4 - Pause
2. FF/Load	5 - Pause	6 - Pause	5 - Pause
3. Pause	2, 5 after timeout - Ready	3, 6 after timeout - Ready	2 - Busy
1. Pause	4 - Pause	5 - Pause	4 - Pause
2. Pause	1, 4 after timeout - Ready	2, 5 after timeout - Ready	1 - Busy
1. FF/Load	5- Ready	6 - Ready	
2. Pause	5 - Pause	6 - Pause	
3. Pause	2, 5 after timeout - Ready	3, 6 after timeout - Ready	

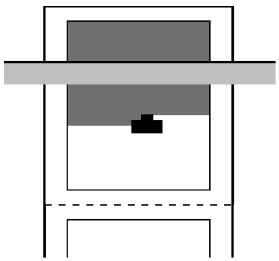
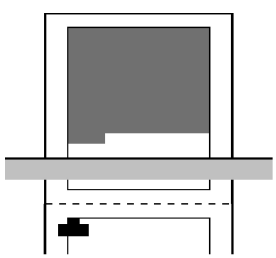
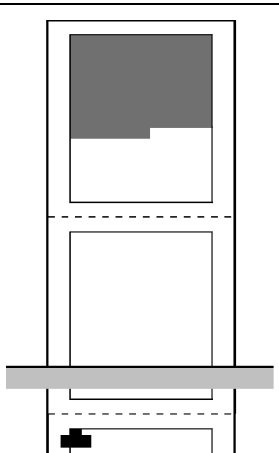
Manual Advance Setting

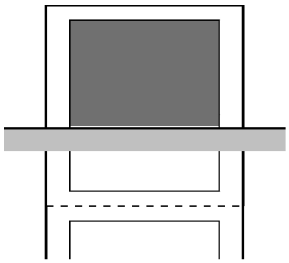
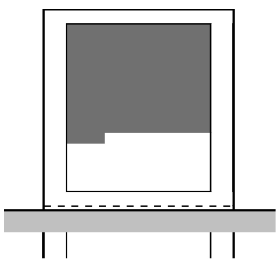
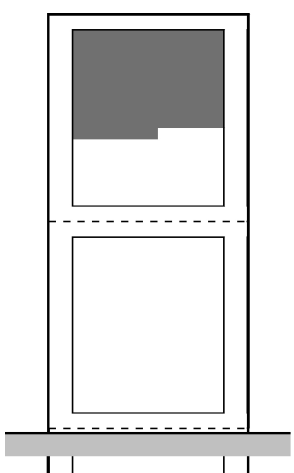
	Print Job Completed		Currently Printing
	Without final <FF> Position - State	With final <FF> Position - State	Position - State
	1 - Ready	2 - Ready	Busy
1. Pause	4 - Pause	5 - Pause	4 - Pause
2. FF/Load	5 - Pause	6 - Pause	5 - Pause
3. Pause	2 - Ready	3 - Ready	2 - Busy
1. Pause	4 - Pause	5 - Pause	4 - Pause
2. Pause	1 - Ready	2 - Ready	1 - Busy
1. FF/Load	2 - Ready	3 - Ready	
2. Pause	5 - Pause	6 - Pause	
3. Pause	2 - Ready	3 - Ready	

No Tear/Reverse Setting

	Print Job Completed		Currently Printing
	Without final <FF> Position - State	With final <FF> Position - State	Position - State
	1 - Ready	2 - Ready	Busy
1. Pause	4 - Pause	2 - Pause	1 - Pause
2. FF/Load	2 - Pause	3 - Pause	2 - Pause
3. Pause	2 - Ready	3 - Ready	2 - Busy
1. Pause	1 - Pause	2 - Pause	1 - Pause
2. Pause	1 - Ready	2 - Ready	1 - Busy
1. FF/Load	2 - Ready	3 - Ready	
2. Pause	2 - Pause	3 - Pause	
3. Pause	2 - Ready	3 - Ready	

Paper Position Definition

Position	Definition
1 	Print head on last printed character while printing or at next line at the end of a job.
2 	Print head on first next Top of Form.
3 	Print head on second next top of form.

Position	Definition
4 	Viewing position. Last printed line facing the tear bar.
5 	Tear-off position. Next perforation facing the tear bar.
6 	Second perforation facing the tear bar.

Setting the DEC Mode

The DEC MODE Option sets the DEC protocol specific features. This Option comprises the following Sub-options:

Sub-options	Definition
HORIZONTAL PITCH	Sets the horizontal spacing of the printed characters
G0 CHARACTER SET	Selects the used G0 Character Set.
USER PREF. C-SET	Selects the User Preference character set.
PRINTER ID	Selects the printer ID.
WRAP vs TRUNCATE	Determines the printer behavior when receiving data that exceeds the right margin.
DISCONNECT./EOT	Determines whether a communication line disconnection occurs at the end of data transmission.
INIT. REPORT	Determines if an initialization report is sent to the host or not.
AUTO. ANSWERBACK	Determines if an ANSWERBACK message is sent to the host or not.
ANSWERBACK/ENQ	Determines whether the ANSWERBACK message is sent to the host when receiving an ENQ code.

Horizontal Pitch

The HORIZONTAL PITCH Sub-option sets the horizontal pitch used with the DEC protocol. The values for the HORIZONTAL PITCH Sub-option are the following: 5, 6, 6.6, 8.25, 8.55, 9, **10**, 12, 13.2, 15, 16.5, 17.1, 18, 20 cpi and Proportional Spacing (Prop. Spacing Value).

G0 Character Set

The `G0 CHARACTER SET` Sub-option sets the G0 character set that will be used with the DEC protocol. The following resident character sets are available:

Value	Definition
`US ASCII`	US ASCII
`British`	British
`French`	French
`German`	German
`Norw./Danish`	Norwegian/Danish
`DEC Finnish`	DEC Finnish
`DEC French-Can.`	DEC French-Canadian
`DEC Norw.-Dan.`	DEC Norwegian/Danish
`DEC Swedish`	DEC Swedish
`DEC Dutch`	DEC Dutch
`DEC Swiss`	DEC Swiss
`DEC Portuguese`	DEC Portuguese
`DEC Supplement.`	DEC Supplemental
`DEC Spec.-Graphi.`	DEC Special Graphics
`DEC Technical`	DEC Technical
`DEC 7bit Hebrew`	DEC 7Bit Hebrew
`DEC Turkish`	DEC 7Bit Turkish
`DEC Hebrew Sup.`	DEC Hebrew Supplemental
`DEC Greek Sup.`	DEC Greek Supplemental
`DEC Turk. Sup`	DEC Turkish Supplemental
`ISO Italian`	ISO Italian
`ISO Spanish`	ISO Spanish
`JIS Katakana`	JIS Katakana
`JIS Roman`	JIS Roman
`Legal`	Legal

User Preference Character Set

The USER PREF. C-SET Option sets the user character set for the DEC protocol. The following character sets are available:

Value	Definition
DEC Supplement	DEC Supplemental
DEC Spec.Graph.	DEC Special Graphics
DEC Technical	DEC Technical
DEC 7bitHebrew	DEC 7Bit Hebrew
DEC 7bit Turkish	DEC 7BIT Turkish
DEC Hebrew Sup.	DEC Hebrew Supplemental
DEC Turkish Sup.	DEC Turkish Supplemental
DEC Greek Suppl	DEC Greek Supplemental
ISO Latin-1	ISO Latin-1
ISO Latin-2	ISO Latin-2
ISO Latin-5	ISO Latin-5
ISO Latin-9	ISO Latin-9 (contains the Euro symbol)
ISO Lat.-Hebrew	ISO Latin-Hebrew
ISO Lat.-Greek	ISO Latin-Greek
ISO Lat.-Cyril.	ISO Latin-Cyrillic
JIS Katakana	JIS Katakana

Printer ID

The PRINTER ID Sub-option defines the DEC printer ID used by the printer when responding to DA commands from your host computer or application software.

Value	Definition
PPL2	Allows the printer to respond as a DEC Conformance Level 2 device.
LA120ID	The printer responds as a LA120 printer.
LA210ID	The printer responds as a LA210 printer.

Wrap or Truncate

The WRAP vs TRUNCATE Option determines the printer behavior when receiving text that exceeds the right margin.

Value	Definition
Wrap	Text beyond the right margin moves to the left margin of the next line. See the following figure.
Truncate	The printer ignores any character beyond the right margin. The exceeding text is lost. See the following figure.

Disconnection on EOT

The DISCONNECT./EOT Sub-option determines whether the communication disconnect occurs at the end of the transmission.

Value	Definition
Enabled	DTR is dropped low on receipt of the EOT.
Disabled	DTR remains high on receipt of the EOT.

Initial Report

The INIT. REPORT Option determines whether the printer sends an initial report to the host or not.

Value	Definition
Enabled	The Initial Report is sent to the host.
Disabled	No Initial Report is sent to the host.

Automatic ANSWERBACK

The AUTO. ANSWERBACK Option determines whether the printer sends an ANSWERBACK message to the printer during initialization or not.

Value	Definition
Enabled	An ANSWERBACK message is sent during initialization.
Disabled	No ANSWERBACK message is sent during initialization.

ANSWERBACK on ENQ

The ANSWERBACK/ENQ Option determines whether the ANSWERBACK message is sent to the host when the printer receives an ENQ code.

Value	Definition
Enabled	The ANSWERBACK message is sent to the host when the printer receives an ENQ code.
Disabled	No ANSWERBACK message is sent to the host when the printer receives an ENQ code.

Configuring the IBM Mode

The IBM MODE Option sets the IBM protocol specific features and comprises the following Sub-options:

Sub-options	Definition
HORIZONTAL PITCH	Sets the horizontal spacing of the printed characters.
IBM C-SET (1/2)	Selects whether the IBM Character Set 1 or 2 is used.
CODE PAGE	Selects the Code Page character sets.
IBM DBL. HEIGHT	Selects the double height printing.
IBM AGM	Selects the IBM Alternate Graphics Mode.
PITCH/COMPRESS	Determines the character pitch when receiving the COMPRESS command.
SLASHED ZERO	Determines whether the zero character is printed with or without a slash.

Horizontal Pitch

The HORIZONTAL PITCH Sub-option sets the horizontal pitch used with the IBM protocol. The values are **10**, 12, 17.1, 20 cpi and Proportional Spacing (Prop.Spacing).

IBM Character Set

The IBM C-SET (1/2) Sub-option identifies which character set is to use.

Value	Definition
IBM SET 1	Printer uses characters and symbols commonly used in English.
IBM SET 2	Printer uses characters and symbols commonly used in non-English languages.

Code Page

The CODE PAGE Sub-option identifies which Code Page is to use.

Value	Definition
Code Page 210	Greek
Code Page 220	Spain
CP 437 GREEK	Greek
Code Page 437	USA
Code Page 850	Multilingual
Code Page 852	Eastern Europe
Code Page 853	Turkish
Code Page 855	Cyrillic
Code Page 857	Turkish
Code Page 858	Euro PC Multilingual (contains the Euro symbol)
Code Page 860	Portugal
Code Page 861	Icelandic
Code Page 862	Hebrew
Code Page 863	Canada/France
Code Page 864	Arabic
Code Page 865	Denmark-Norway
Code Page 866	Russian
Code Page 869	Greek
Abicomp	Brazilian-Portuguese
Brazilian ASCII	Brazilian
Mazowian	Polish
Code MJK	CSFR
Bulgarian	Bulgarian
ISO 8859-7	Latin Greek
ISO 8859-15	Latin 9 (contains the Euro symbol)

Value	Definition
ISO Latin 1T	Turkish
D-Hebrew	David Hebrew
New Hebrew	Modern Hebrew

IBM Double Height

The IBM DBL. HEIGHT Sub-option determines whether the IBM Double Height mode should be used (Enabled) or not (**Disabled**).

IBM AGM

The IBM AGM Sub-option determines whether the Alternate Graphics Mode should be used (Enabled) or not (**Disabled**).

Horizontal Pitch on COMPRESS

The PITCH/COMPRESS Sub-option selects the character density when receiving the COMPRESS command.

Value	Definition
17.1 cpi	When the COMPRESS command is received, printing is performed at 17.1 cpi.
20 cpi	When the COMPRESS command is received, printing is performed at 20 cpi.

Slashed Zero

The SLASHED ZERO Sub-option selects whether the zero character is printed with or without a slash.

Value	Definition
Yes	Zero character is printed with a slash.
No	Zero character is printed without a slash.

Setting the EPSON Mode

The EPSON MODE Option sets the EPSON protocol specific features and comprises the following Sub-options.

Sub-option	Definition
HORIZONTAL PITCH	Sets the horizontal spacing of the printed characters.
NATIONAL C-SET	Selects the National character set to be used.
CODE PAGE	Selects the Code Page character sets.
EPSON C-SET	Applies an italic style or not to the character sets.
SLASHED ZERO	Determines whether the zero character is printed with/without a slash.

Horizontal Pitch

The HORIZONTAL PITCH Option sets the horizontal pitch used with the EPSON protocol. The values are **10**, 12, 17.1, 20 cpi and Proportional Spacing (Prop. Spacing).

National Character Set

The NATIONAL C-SET Sub-option identifies which national character set is to use.

Value	Definition
USA	USA
France	France
Germany	Germany
United Kingdom	United Kingdom
Denmark 1	Denmark 1
Denmark 2	Denmark 2
Sweden	Sweden
Italy	Italy
Japan	Japan
Spain 1	Spain 1
Spain 2	Spain 2
Norway	Norway
Latin America	Latin America
Korea	Korea
Turkey	Turkey
Legal	Legal
Old Hebrew	Old Hebrew
New Hebrew	New Hebrew
D-Hebrew	David Hebrew

Code Page

The CODE PAGE Sub-option identifies which Code Page is to use.

Value	Definition
Code Page 210	Greek
Code Page 220	Spain
CP 437 Greek	Greek
Code Page 437	USA
Code Page 850	Multilingual
Code Page 852	Eastern Europe
Code Page 853	Turkish
Code Page 855	Cyrillic
Code Page 857	Turkish
Code Page 858	Euro PC Multilingual (contains the Euro symbol)
Code Page 860	Portugal
Code Page 861	Icelandic
Code Page 862	Hebrew
Code Page 863	Canada/France
Code Page 864	Arabic
Code Page 865	Denmark-Norway
Code Page 866	Russian
Code Page 869	Greek
Abicomp	Brazilian-Portuguese
Brazilian ASCII	Brazilian
Mazowian	Polish
Code MJK	CSFR
Bulgarian	Bulgarian
ISO 8859-7	Latin Greek
ISO 8859-15	Latin 9 (contains the Euro symbol)

Value	Definition
ISO Latin 1T	ISO Latin-1 Turkish
D-Hebrew	David Hebrew
New Hebrew	Modern Hebrew

EPSON Character Set

The EPSON C-SET Sub-option defines the style which is applied to the character set:

Value	Definition
Graphic	The character sets are not altered.
Italic	The Italic style is applied to the character set.

Slashed Zero

The SLASHED ZERO Sub-option selects whether the zero character is printed with or without a slash.

Value	Definition
Yes	The zero character is printed with a slash.
No	The zero character is printed without a slash.

Testing Your Printer

The correct functioning of your printer can be checked using the TEST/HEX-DUMP Function of Set-Up mode.

To perform these tests paper must be already loaded in the printer. See "Paper Handling".

You access to the TEST/HEX-DUMP Function as follows:

1. Press the *Set-Up* button.
   MACROS is displayed.
2. Press the → button three times.
   TEST/HEX-DUMP is displayed.
3. Press the ↓ button.
4. Pressing the → or the ← button you can choose, which test you want to perform:

Sub-option	Definition
Self-Test	The printer prints the self test.
HEX-DUMP MODE	This Option allows you to enable or disable the Hex-Dump mode.

Printing the Self-Test

The Self-Test printout consists of a header and an ASCII swirl pattern sequence for each resident font (at 10, 12 and 15 cpi for each font).

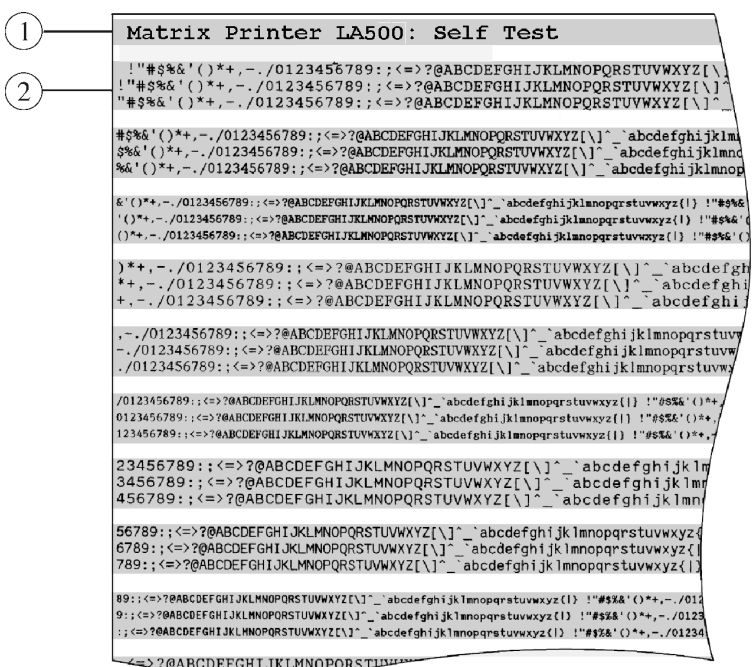
The Self-Test checks also the correct print head movement along the whole carriage bar. For this reason the Self-Test should always be performed with 136 columns wide paper to avoid damaging the platen.

- The Self-Test printout starts as soon as you press the *Sel/Save* button.
- To stop the Self-Test, press the Exit button.

The Self-Test is structured as follows:

① Test header

② Swirl pattern sequence



Hex-Dump Printing

The Hex-Dump mode lets you print the received data as hexadecimal codes.

To enable Hex-Dump mode:

1. Select the `HEX-DUMP` Mode Option of the `TEST/HEX-DUMP` Function.
2. Select the `Enable Hex-D.` Value.
   The printer switches directly to the Hex-Dump mode. The basic screen shows `Hex` instead of the current protocol.

To disable Hex-Dump mode:

1. Press the *Set-Up* button.
   The display shows `Disable Hex-D`.
2. Press the *Sel/Save* button.
   The printer switches back to Normal mode. The basic screen is displayed.

Adjusting Your Printer

This printer gives you the possibility to finely adjust bidirectional printing, the position of the first printable line for printing and the perforation position for tearing-off.

Ensure that paper is loaded, before starting the tests.

How to Adjust your Printer

Use the USER ADJUSTMENTS Function to perform the adjustments mentioned above. Proceed as follows:

1. Press the *Set-Up* button.
   The display shows MACROS.
2. Press the → or ← button until the display shows USER ADJUSTMENTS.
3. Press the ↓ button. The display shows BIDI.ALIGNMENT.
4. Press the → or the ← button to scroll the Options of the USER ADJUSTMENTS Function.

Options	Definition
BIDI.ALIGNMENT	Adjusts the bidirectional printing.
LINE #1 FRONT1	Adjust the position of the first printable line for the Push-Front1 paper path.
LINE #1 FRONT2	Adjust the position of the first printable line for the Push-Front2 paper path.
TEAR-PERFO ALIGN	Adjusts the position of the paper perforation with regard to the tear bar.

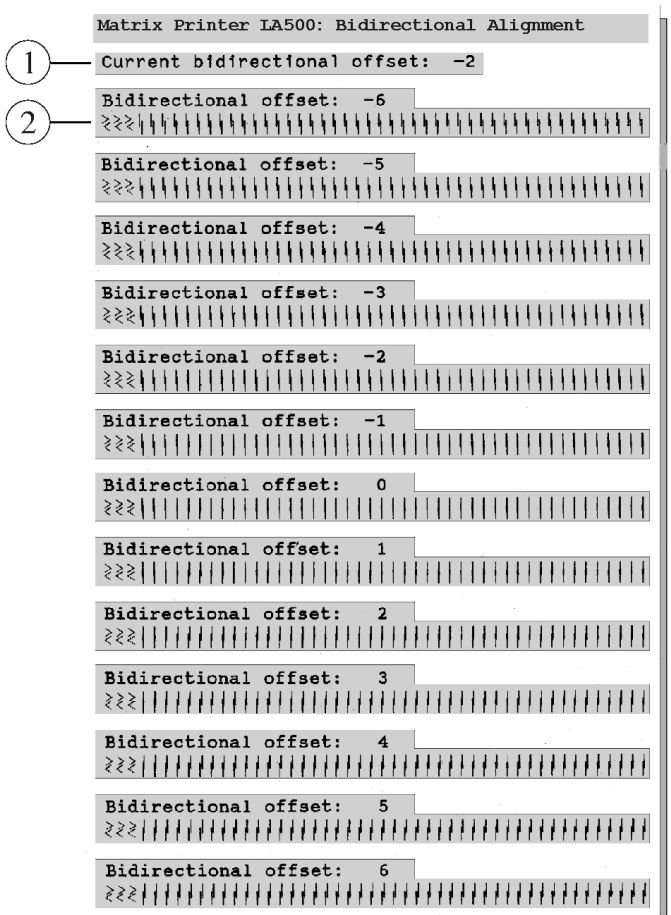
See "Configuring Your Printer" for details on how to navigate in Set-Up mode.

Adjusting the Bidirectional Alignment

To perform bidirectional alignment:

1. Display the current value of the BIDI. ALIGNMENT Option by pressing the ↓ button.
2. Press the *Sel/Save* button.
   The Bidirectional Alignment table is printed.

   The current bidirectional offset Value ① is printed under the header. For each possible Value, two lines of pipe characters ② are printed.
3. Select the desired value.
4. Exit Set-Up mode.



See "Configuring Your Printer" for details on how to navigate in Set-Up mode.

Adjusting the Position of the First Printable Line

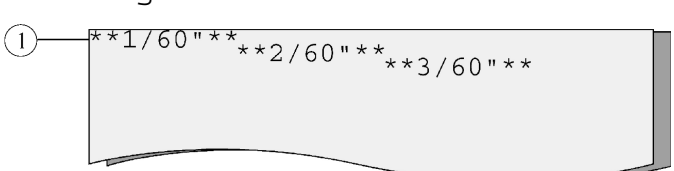
The positioning of the continuous form fed with the tractor unit in Front1 Position or with the tractor unit in Front2 position can be finely adjusted with the `LINE #1-FRONT1` or the `LINE # 1-FRONT2` respectively.

To adjust these values, insert paper on the paper path for which you want to change the position of the first printable line and proceed as follows:

1. Enter the `USER ADJUSTMENTS` Function as described before and select the `LINE #1-FRONT1` or `LINE # 1-FRONT2` Option according to the tractor position.
   The display shows the current value at the actual corresponding position.
2. Display the desired Value and press the *Sel/Save* button.
   The printer parks the paper, loads it again and prints the current Value ① at the actual corresponding position. The paper is then moved to the viewing position. For example, for the value 1/60 inches, the printer prints ** 1/60"**. This allows you to check the current position.

See "Configuring Your Printer" for details on how to navigate in Set-Up mode.

3. If the current Value is not acceptable, choose another value and press the *Sel/Save* button.
   The same printing procedure is performed again.
4. Once you have selected the proper Value, press the Exit button to save modification.
   The display reads `Save Config`.

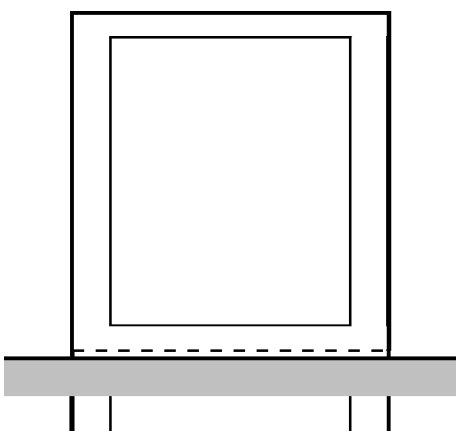


5. Press *Sel/Save* button to permanently save your modification.

Adjusting the Tear-off Position

You can perform a fine adjustment of the Tear-off position to facilitate paper tearing.

1. Enter the USER ADJUSTMENTS Function as described before and select the TEAR-PERFO ALIGN. Option.
2. Press the ↓ button.
   The paper is parked, then loaded to the current tear-off position.
   The current Value is displayed.



3. Press the → or ← button to adjust the Tear-off position.
   The paper moves according to the displayed Value.
4. When the paper perforation is positioned according to your needs, press the Exit button.
   Your modification is saved and the basic screen is displayed.

See "Configuring Your Printer" for details on how to navigate in Set-Up mode.

Printer Maintenance and Troubleshooting

Cleaning the Printer

Make sure the printer has been turned off for at least 15 minutes before starting any cleaning operations.

Periodic cleaning will help keep the printer in top condition so that it will always provide optimal performance.

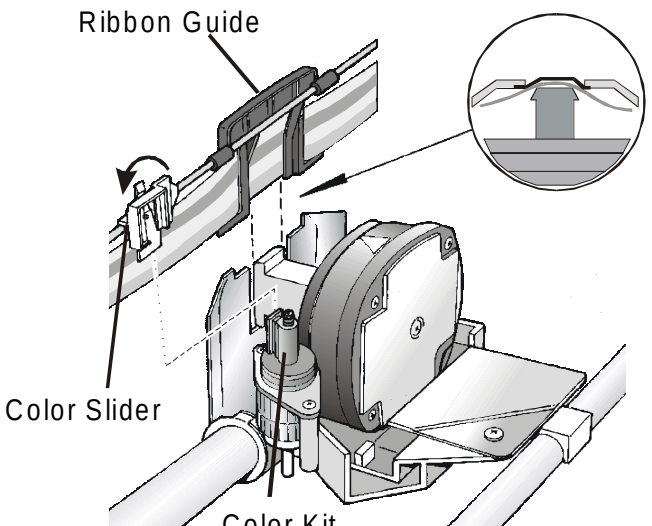
- Use a neutral detergent or water solution on a soft cloth to clean dirt and grease from the cabinet of the printer.
- Do not use an abrasive cloth, alcohol, paint thinner or similar agents because they may cause discoloration and scratching.
- Be especially careful not to damage the electronic and mechanical components.

Replacing the Ribbon Cartridge

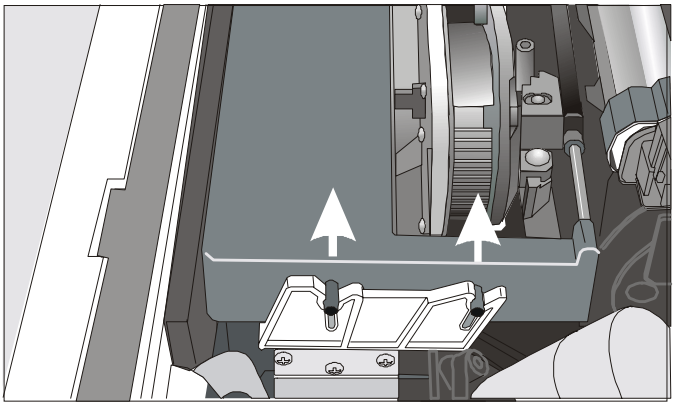
1. Make sure that the printer is turned off for at least 15 minutes.

Pay attention to the print head because it becomes hot during operation.

2. Open the top printer cover.
3. Slide the ribbon guide out of the print head. If the color mechanism is installed on the printer, unlock the white slider pressing and holding the lever on the slider towards the back of the printer and contemporaneously lifting the slider off the color mechanism.



4. Remove the used ribbon cartridge by lifting it up.



The printer is now ready to install the new ribbon cartridge. See before "**Ribbon Cartridge Installation**".

Troubleshooting

This section describes the problems, which may occur when using the printer and suggests possible solutions.

In most cases, the display shows rolling messages when an error occurs. The first part of the message identifies the error the second part suggests a solution.

Installation Problems and Solutions

Symptoms	Possible Cause	Action/Resolution
No indicator lit. Power switch in I (on) position.	Power cable not properly connected.	Check the connection of the power cable on both sides.
	Power cable damaged.	Check the power cable itself.
	Printer failure.	Call Service.
Printer not printing. Ready indicator lit.	Incorrect setting of the printer.	1. Perform a self-test. 2. If the self-test is OK, see the other causes. If the self-test is not OK, power the printer off and on again. 3. Perform another self-test. 4. If the self-test is not OK, call Service.
	Interface cable is not properly connected.	Check the connection of the interface cable on both sides.
	Selection of the protocol is not correct.	Check PROTOCOL Option in the Set-Up. See "**Setting the Communication Interface**".
	Printer communication settings are not appropriate to host settings.	Check the INTERFACE Option settings in Set-Up. See "**Setting the Communication Interface**".

Printing Problems and Solutions

Symptoms	Possible Cause	Action/Resolution
Printer not printing. Print head carriage moves.	Ribbon cartridge is not installed.	Install the ribbon cartridge. See Step 2 in the *Quick Reference Guide*.
	Ribbon is not properly installed.	Reinstall or readjust the ribbon cartridge properly. See Step 2 in the *Quick Reference Guide*.
	Print head is not close enough to the paper.	Check the PRINT GAP Option setting in Set-Up. See "**Setting the Printing Modes**".
		If the PRINT GAP Option is set to Auto. adjust., check the AUTO. GAP OFFSET Option setting in Set-Up. See "**Setting the Printing Modes**".
Poor print quality.	Paper type is not correct.	Use paper conforming to the paper specifications. See "**Paper Specifications**".
	Ribbon cartridge type is not correct.	Use a GENICOM ribbon cartridge. See "Supplies and Options Order Numbers" in the *Quick Reference Guide*.
	Ribbon is not properly installed.	Reinstall or readjust the ribbon cartridge properly. See Step 2 in the *Quick Reference Guide*.
	Ribbon is worn or defective.	Replace the ribbon cartridge. See "**Replacing the Ribbon Cartridge**".
	Ribbon is jammed.	Turn the ribbon feed knob to release the ribbon. If the ribbon feed is stuck, replace the ribbon cartridge. See "**Replacing the Ribbon Cartridge**".
	Print head is not properly set (print head is too close or too far).	Check the PRINT GAP Option setting in Set-Up. See "**Setting the Printing Modes**".

Symptoms	Possible Cause	Action/Resolution
Poor print quality (cont.)		If the PRINT GAP Option is set to Auto. adjust., check the AUTO. GAP OFFSET Option setting in Set-Up. See "**Setting the Printing Modes**".
	Print head may be worn.	1. Perform a self-test. 2. If the self-test is OK, see the other causes. If the self-test is not OK, call Service.
Dark or smudged printing	Print head is too close to the paper.	Check the PRINT GAP Option setting in Set-Up. See "**Setting the Printing Modes**".
		If the PRINT GAP Option is set to Auto. adjust., check the AUTO. GAP OFFSET Option setting in Set-Up. See "**Setting the Printing Modes**".
Blank spaces or missing dots within characters	Print head may be worn	1. Perform a self-test. 2. If the self-test is OK, see the other causes. If the self-test is not OK, call Service.
Print overlap.	Paper Path is obstructed.	1. Clear Paper Path. 2. Press Pause to resume printing.
	Vertical pitch setting is not correct.	Check the VERTICAL PITCH Option setting in Set-Up. See "**Setting the Publishing Style**".
Garbled characters.	Printer communication settings are not appropriate for host settings.	Check the INTERFACE Option settings in Set-Up. See "**Setting the Communication Interface**".
Poor alignment of the vertical lines.	Bidirectional alignment setting is not correct.	1. Perform the BIDI. ALIGNMENT procedure of the USER ADJUSTMENTS Function. 2. Check the result. 3. If the result is not correct, select the Unidirectional value of the PRINT DIRECTION Option.

Symptoms	Possible Cause	Action/Resolution
First line position is not precisely at the correct position. Top of Form is set to zero. Top Margin is set to line #1.	Line #1 setting is not correct.	1. Perform the LINE #1 – FRONT1 or LINE #1 – FRONT2 procedure of the USER ADJUSTMENTS Function. 2. Check the result. 3. If the result is not correct, call Service.
Printing does not start at the right vertical position.	Top of Form or Top Margin settings are not correct.	Check the settings of the TOP OF FORM or TOP MARGIN Options in the Set-Up. See "**Setting the Printing Modes**".
Double spaced lines instead of single spaced.	Software setting is not correct.	Check line spacing in your software.
	Line mode setting is not correct.	Select the LF=LF, CR=CR value for the LINE MODE Option in the Set-Up. See "**Setting the Printing Modes**".
Overprint on the same lines.	Line mode setting is not correct.	Select the CR=LF+CR value for the LINE MODE Option in the Set-Up. See "**Setting the Printing Modes**".
Next printed line starts where the previous line ended instead of at left margin.	Line mode setting is not correct.	Select the LF=LF+CR value for the LINE MODE Option in the Set-Up. See "**Setting the Printing Modes**".
Overprint on the same line while next printed line starts where the previous line ended instead of at left margin.	Line mode setting is not correct.	Select the LF&CR=LF+CR value for the LINE MODE Option in the Set-Up. See "**Setting the Printing Modes**".

Symptoms	Possible Cause	Action/Resolution

Printer not printing.
Message:
`Data lost`
`Check interface`
	Interface cable not properly connected.	Check the connection of the interface cable on both sides.

	Selection of the protocol is not correct.	Check the `PROTOCOL` Option setting in Set-Up. See "**Selecting the Protocol**".
	Printer communication settings are not appropriate to host settings.	Check the `INTERFACE` Option setting in Set-Up. See "**Selecting the Protocol**".

Printer not printing.
Message:
`Comm. Failure`
`Check line`
	Buffer control settings are not appropriate.	Check the `BUFFER CONTROL` Option setting in Set-Up. See "**Setting the Communication Interface**".

	Line failure.	Check the interface cable type.
		Check the physical connection and the interface itself.

Printer not printing.
Message:
`Carriage error`
`Check its moving`
	Print head carriage path is obstructed.	1. Clear the print head carriage path.
		2. Press the Pause button.

	Ribbon blocked in front of the print head.	Reinstall the ribbon cartridge.

Printer not printing.
Message:
`Ribbon blocked`
`Check its moving`
	Ribbon blocked.	1. Check that the ribbon cartridge is correctly installed.
		2. Turn the ribbon feed knob to make sure the ribbon is not jammed.
		3. Press the Pause button.

Paper Handling Problems and Solutions

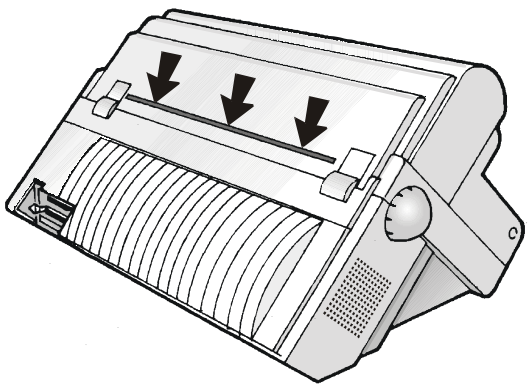
Symptoms	Possible Cause	Action/Resolution

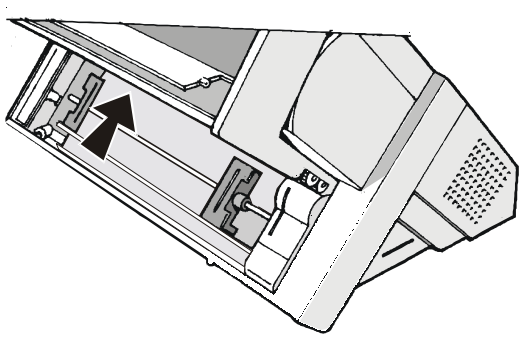
Paper jam
Possible messages:
`Push-Front1 jam`
`Check paper`
 	
or
`Push-Front2 jam`
`Check paper`
	Paper path is obstructed.	1. Clear the Paper Path.
		2. Press Pause to resume printing.

	Pinfeed holes of continuous form are not placed properly on the tractors.	1. Clear paper jam. 2. Reinstall the paper
	Continuous form is too taut or has too much slack.	1. Clear paper jam. 2. Reinstall the paper
	Paper supports of the tractor unit are not positioned evenly across the paper width.	1. Clear paper jam. 2. Reinstall the paper
	Print head is too close to the paper.	Check the `PRINT GAP` Option setting in Set-Up. See "**Setting the Printing Modes**".
		If the `PRINT GAP` Option is set to `Auto. adjust.`, check the `AUTO. GAP OFFSET` Option setting in Set-Up. See "**Setting the Printing Modes**".
The selected paper feeding device does not load the paper.	Paper feeding device is not properly mounted.	1. Power-off the printer. 2. Remount the paper feeding device. For the tractor in Front position, ensure that the paper separator is properly retracted.
	Paper feeding device failure.	Call Service.

If the message `Remove paper` appears on the display and no document is actually loaded in any of the paper paths:

1. Check that no paper debris or dust is present in front of the paper detection sensors.
2. If necessary clean them with air blow. The figure shows how to clean the front path sensor, and the rear path sensor.





3. In case the `Remove paper` message is still displayed:
   - Power off the printer
   - Make sure no paper is loaded
   - Hold down the *Set-Up* button while powering the printer on.

   The printer enters the Paper Sensor Tune mode and then displays:

   ```
   1. Pap. sensor tune
   2. Clear paper path
   ```

4. Press the *Sel/Save* button.
   The printer initializes the paper detect sensors while the display shows `Tuning sensor...` and then enters Ready state.

Printer Failure

Symptoms	Possible Cause	Action/Resolution

Printer failure.
Message:
`Printer failure`
`Call Service.`
	Electronic or mechanical internal failure.	Call Service.

Hex-Dump Mode

If the printer prints wrong characters, you can select the Hex-Dump Mode in the printer Test/Hex-Dump menu in order to analyze both printing and non-printing characters arriving on the printer.

In Hex-Dump Mode the printer prints all characters in their hexadecimal code.

See "**Testing Your Printer**" on details for the Hex-Dump Mode setting.

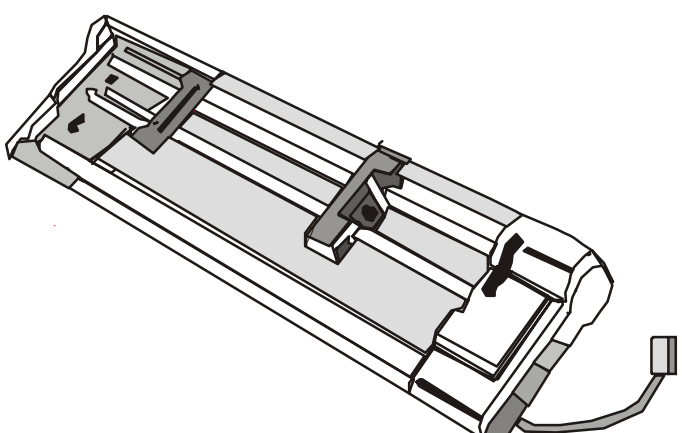
Options

The Front2 Push Tractor

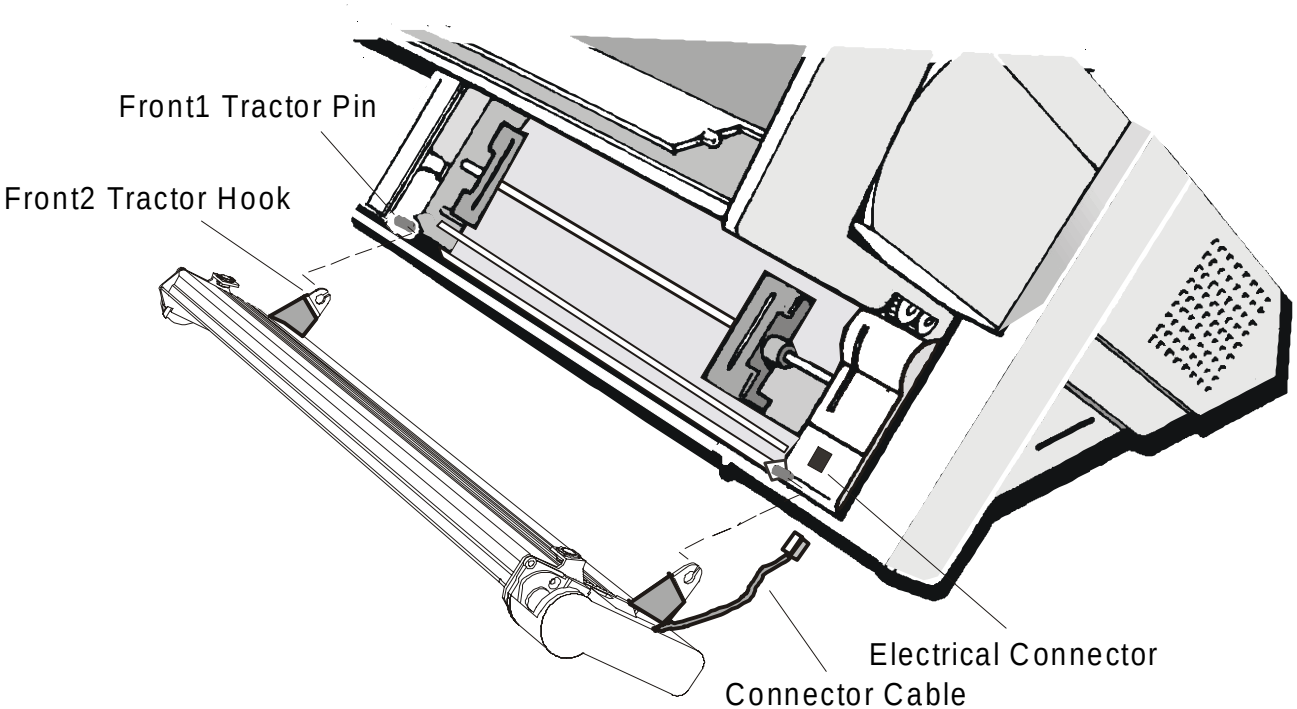
An optional second front push tractor can be installed on the printer. This tractor allows the handling of a second fanfold paper.

Installing/Removing the Front2 Push Tractor

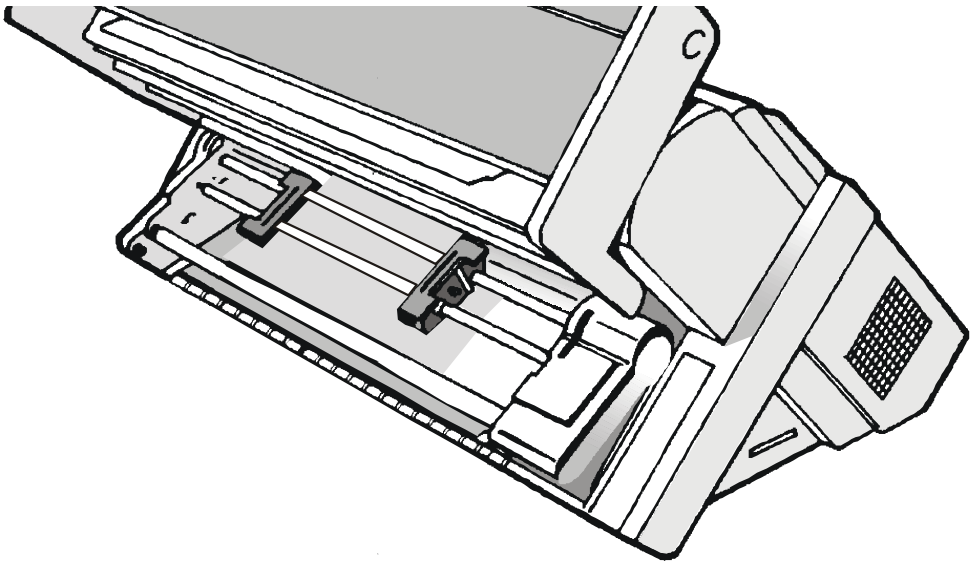
This second push tractor unit can be installed in front position on the Front1 Push tractor.



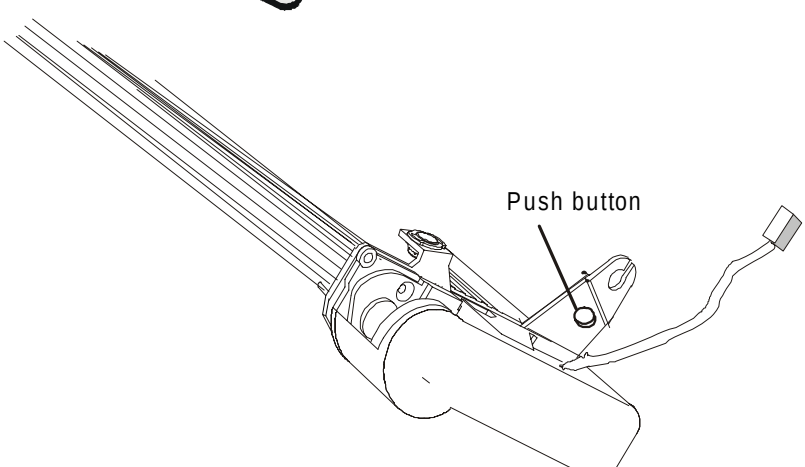
1. Install the Front2 Push tractor aligning both its hooks with the Front1 Push tractor pins and inserting them into the corresponding pins. Push the Front2 tractor until it is fully engaged. Insert the connector cable in the electrical connector located in the Front1 Push tractor.



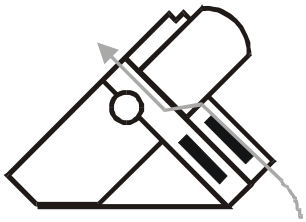
2. The upper push tractor must be installed as shown in figure.



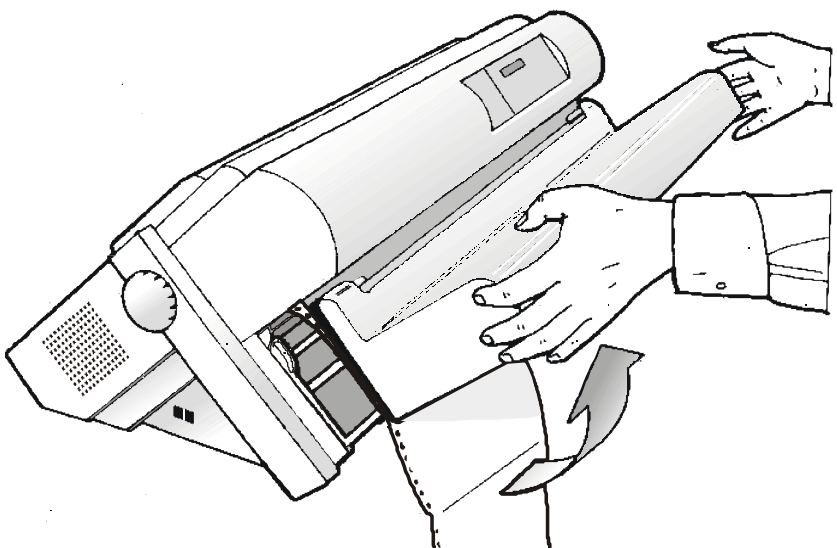
3. To remove the Front2 push tractor, turn the printer off. Take the connector cable off and press on the push buttons (located in the upper push tractor hooks) to disengage the tractor.



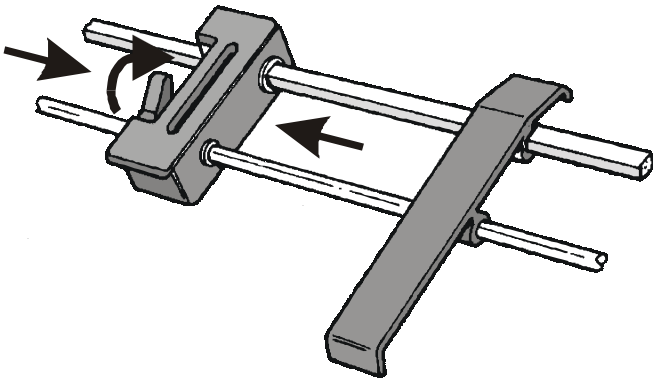
Loading Paper Using the Front2 Tractor Option



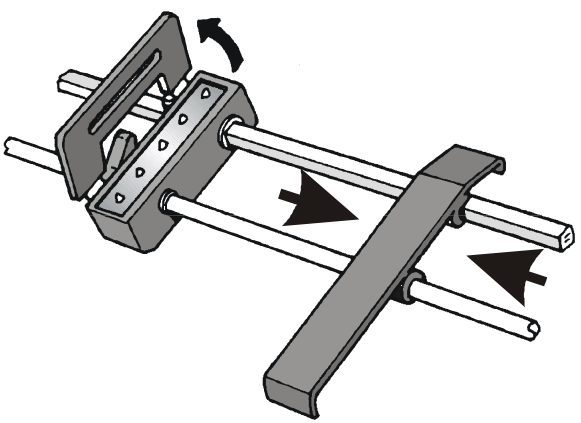
1. Open the tractor area cover turning is upwards and lay it on the top of the printer.



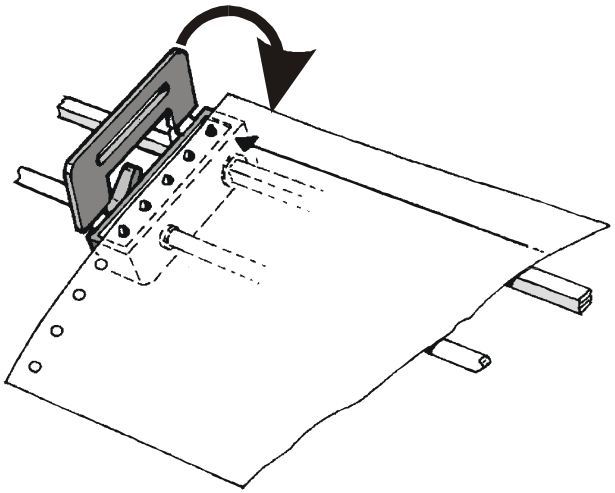
3. Unlock the Front2 tractor sprockets moving the sprocket levers down. Slide the left sprocket to the first printing column.



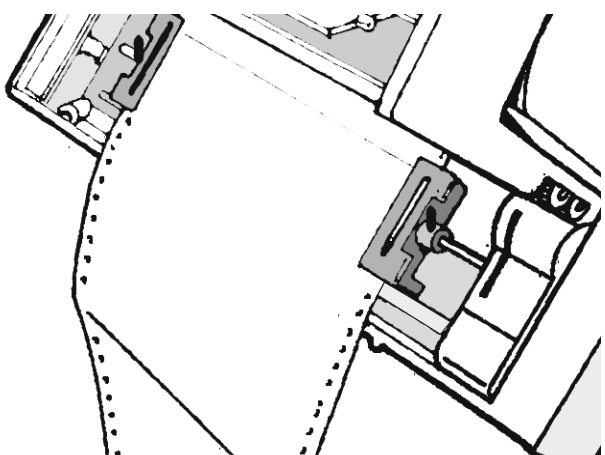
4. Space the paper guides along the tractor bar. Open the sprocket covers of the left and right sprocket.



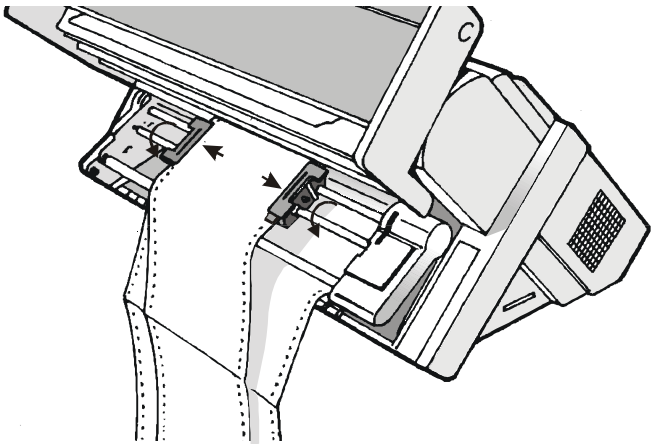
5. Hold the fanfold paper in front of the sprockets and insert the paper perforation on the left sprocket pins and close the sprocket cover.



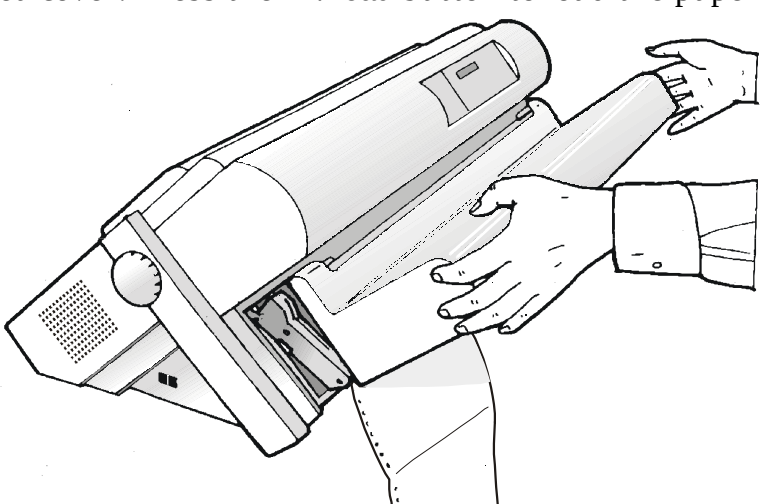
6. Insert the paper on the right sprocket pins, and close the sprocket cover.



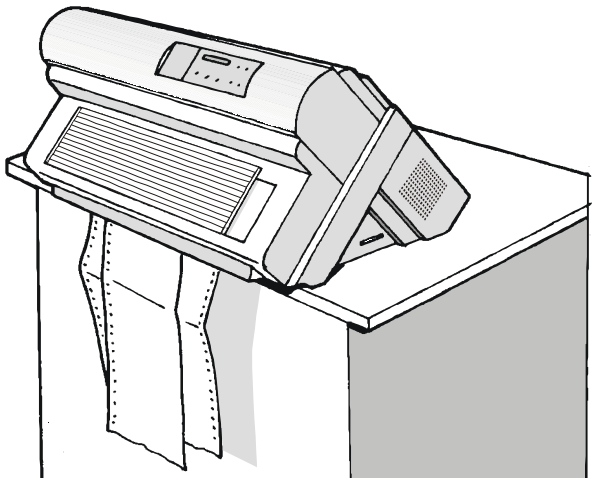
7. Position the left sprocket for printing and lock it in place. Adjust gently the right sprocket to remove slack from the paper and lock it in place.



8. Close the tractor area cover. Press the FF/Load button to load the paper into the printer.



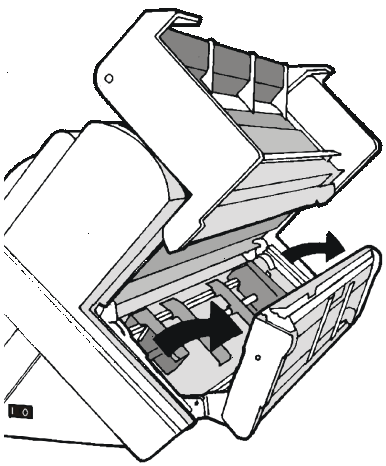
9. The paper must be loaded as shown in figure.



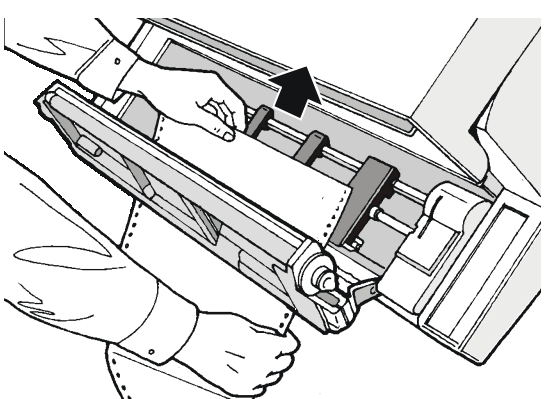
Loading Paper with the Front1 Push Tractor when the Front2 Push Tractor is installed

When the Front2 Push tractor is installed, the paper loading procedure for the Front2 Push tractor is slightly different.

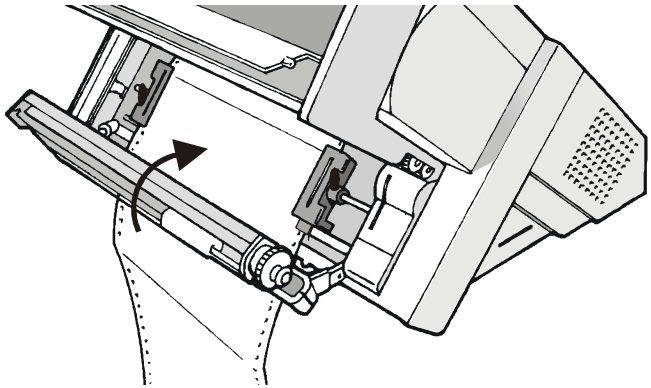
- If you need to install paper on the Front1 Push tractor, rotate the Front2 Push tractor outside the printer.



- Insert the fanfold paper between the lower and the upper tractor, then install it as usually. See "**Loading Paper using the Front1 Tractor**" before.



- When the fanfold paper has been installed on the Front1 tractor, reposition the Front2 tractor in its initial position before closing the printer front cover.

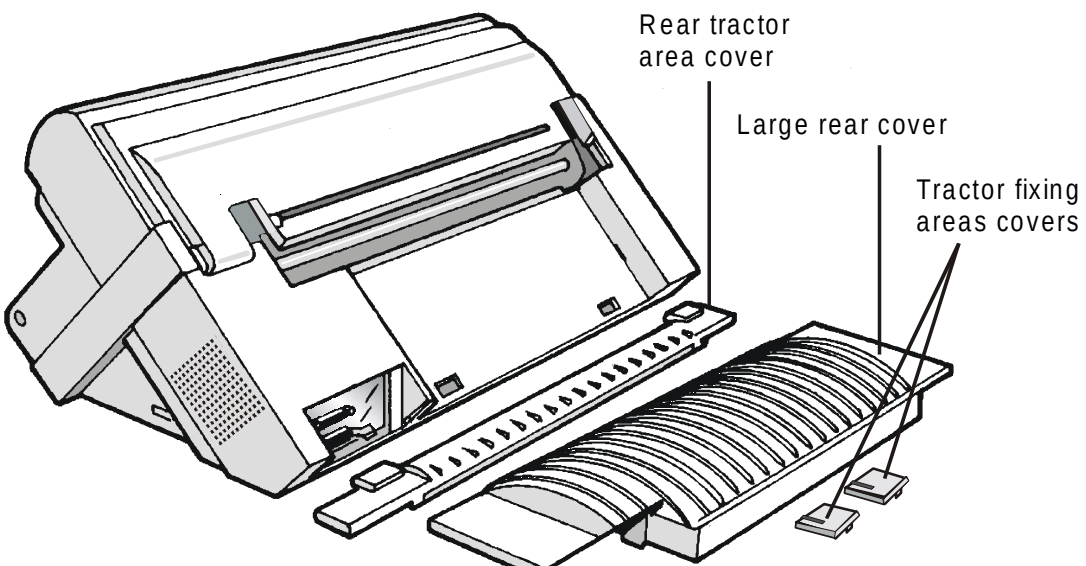


The Rear Pull Tractor

The Rear Pull tractor is useful to handle particularly heavy paper.

Installing the Rear Pull Tractor

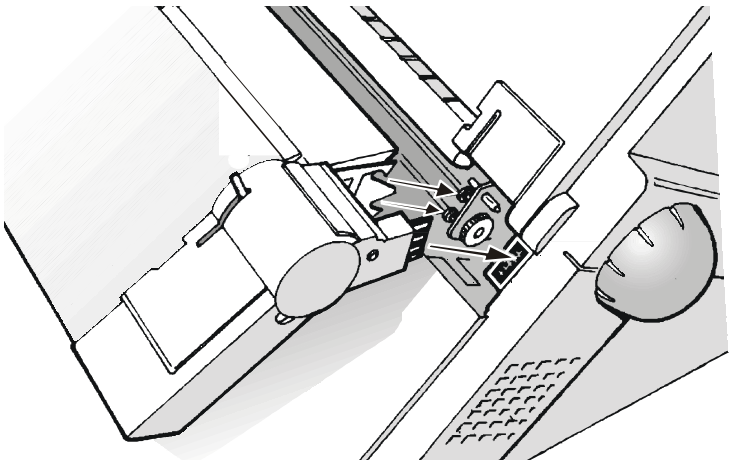
1. Turn the printer off.
2. Remove the Large rear cover, the rear tractor area cover and the two small tractor fixing area covers.



Keep the covers in a safe place, as they must be reinstalled if the rear tractor is removed.

3. Replace the Large rear cover.

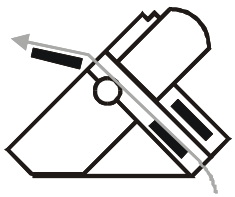
4. Insert the Rear Pull tractor as shown in figure and the corresponding fixing area covers (with the slot) as shown in figure.



5. Turn the printer on.

The paper can be loaded in Push-Pull mode. See "**Loading Paper Using the Front1 Push Tractor and the Rear Pull Tractor (option)**".

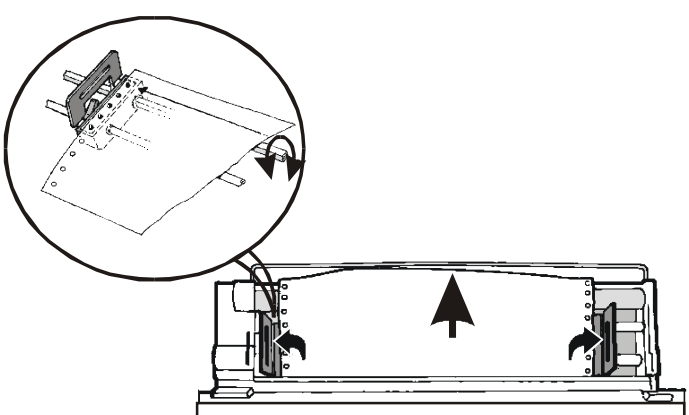
Loading Paper Using the Front1 Push Tractor and the Rear Pull Tractor (option)



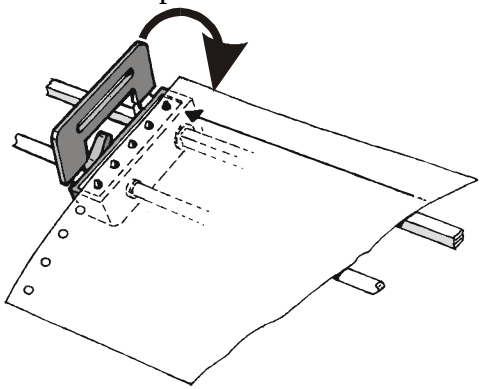
Once the Rear Pull tractor is installed, the fanfold paper can be loaded only in Push-Pull mode, using the Front1 Push tractor and the Rear Pull tractor. In this way it is possible to handle stronger paper.

1. Load the fanfold paper on the Front1 Push tractor, following the sequence **Loading Paper Using the Front1 Tractor** described before.

2. Take up the slack of the paper exiting from the rear paper slot and rotate the sprocket bar to align the sprocket pins of the rear tractor with the paper perforation.

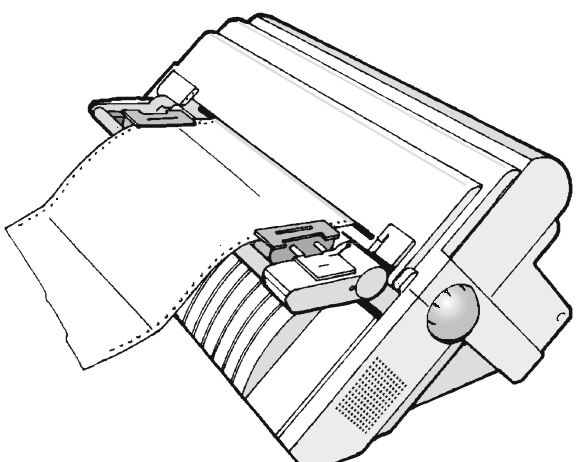


4. Lock the sprocket covers and lower the sprocket levers.



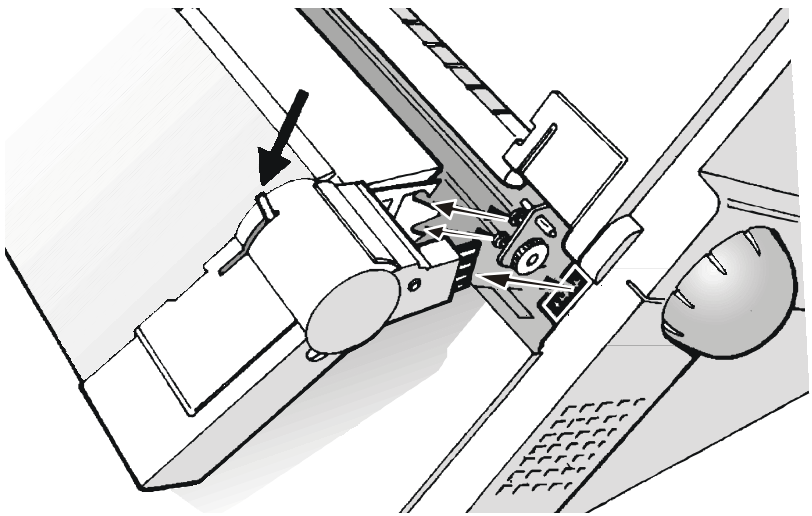
5. Press the Pause key to confirm that the paper loading is finished. The rear tractor engages.

6. The figure shows the correct paper loading.



Removing the Rear Pull Tractor

1. Push the lever on the Rear Pull tractor down and lift the tractor out of the printer.



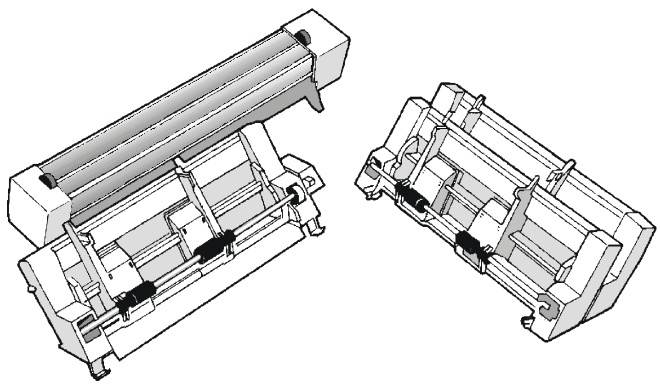
2. Insert the rear tractor cover and make sure that the interlock connector is correctly inserted.

If the cover is not inserted, the printer is blocked.

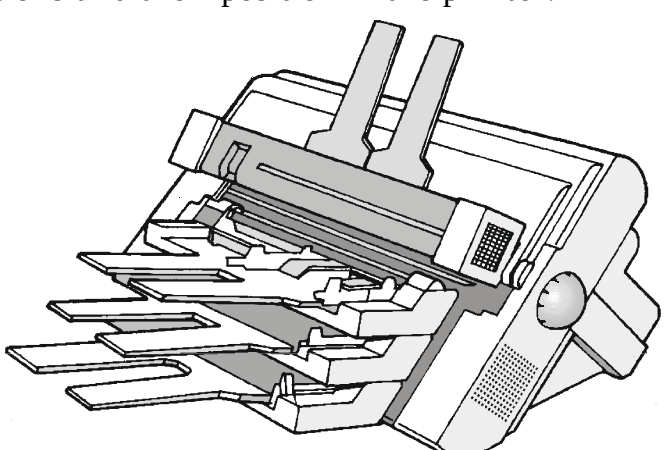
Automatic Sheet Feeder (ASF)

The Automatic Sheet Feeder (ASF), located in the rear of the printer, provides fast and automatic single sheet and envelopes loading. The ASF includes:

- A *paper stacker*, which automatically collects the output paper.
- A *single bin* for single sheets (A5, A4, Letter, Legal, Executive) and envelopes.
- A 2nd and 3rd optional bins are also available.

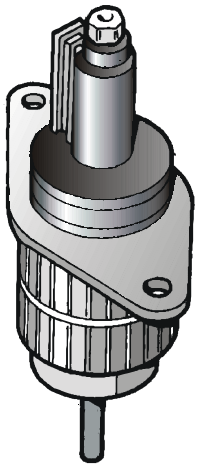


Please find the installation instructions for the ASF on the corresponding manual. The following picture shows the ASF options and their position in the printer.



Color mechanism

This printer can print not only in black but also in different colors. For color printing you need the optional color mechanism shown in the figure below.



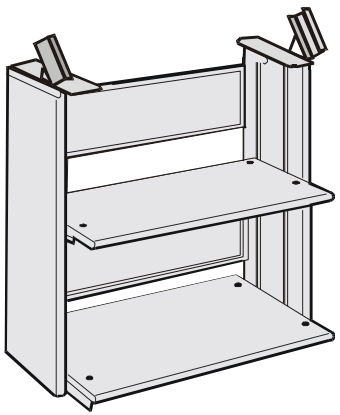
The color mechanism is installable by an authorized technician.

The color or the black ribbon 'Long Life' cartridge can be used when the color mechanism is installed.

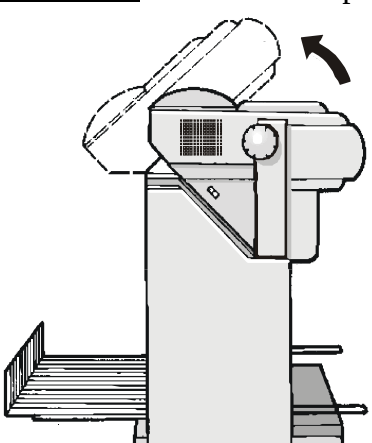
Pedestals

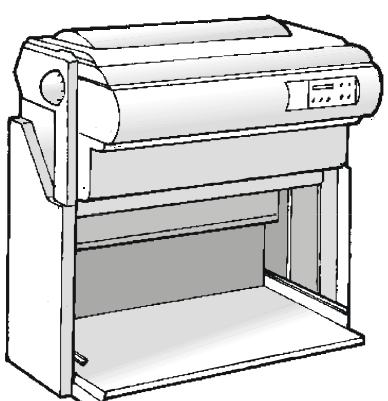
Two printer floor pedestals are available:

Three Levels Floor Pedestal for large paper quantity and dual fanfold handling.



Two Levels Floor Pedestal with tiltable printer level for document on demand application.





Printer Specifications

Printing Characteristics

Print Head	
Matrix	24 pins - 0.2 mm
Print Head Life	400 mil characters (draft)

Print Speed (cps)		
	Draft	Quality
10 cpi	500	133
12 cpi	600	160
15 cpi	600	200

Throughput (pages/hour)		
	Draft	Quality
ECMA 132	440 pph	215 pph

Print Matrix (horizontal x vertical)		
	Draft	Quality
10 cpi	12 x 24	36 x 24
12 cpi	12 x 24	30 x 24
15 cpi	8 x 24	24 x 24

Print Density (characters per inch)	
Normal	10 - 12 - 15 - 17.1 - 20 - 24
Enlarged	5 - 6 - 7.5 - 8.5
Proportional	

Line length (number of characters)			
10 cpi	136	17.1 cpi	233
12 cpi	163	20 cpi	272
15 cpi	204	24 cpp	326

Vertical Spacing
6, 8 LPP
n/60, n/72, n/180, n/216 inch
3, 4, 6, 8, 12 lines/30 mm

Print Styles
Draft, High Impact Draft, Courier, Roman, Sans Serif, Prestige, Script, Orator, OCR A, OCR B

Print Attributes
Underline, double underline, overline, strike-through printing, bold, multicopy, double width, slant, color

Characters Sets	
International character sets ASCII	
Standard PC IBM Character Sets	CS1 and CS2
EPSON National Variations	USA, France, Germany, United Kingdom, Denmark-1, Sweden, Italy, Spain-1, Japan, Norway, Denmark-2, Spain-2, Latin America, Turkey, Korea, Legal, Old Hebrew
IBM and EPSON Code Pages	CP210, CP220, USA (CP437), Greek (CP437-G), Multilingual (CP850), Eastern Europe (CP852), Turkish (CP 853), Cyrillic (CP855), Turkish (CP857), Euro PC Multilingual (CP858), Portugal (CP860), Hebrew (CP862), Canada/France (CP863), Arabic (CP864), Denmark/Norway (CP865), Russian (CP866), CP869, Abicomp, Brascii, Mazowian, Code MJK, Bulgarian, ISO 8859/15, ISO Latin 1T, D-Hebrew, New Hebrew

DEC Protocol	
- G0 Character Sets	US ASCII - British - DEC Finnish - French - DEC French-Canadian - German - ISO Italian - JIS Roman - DEC Norway/Denmark - ISO Spanish - DEC Swedish - Norwegian/Danish - DEC Dutch - DEC Swiss - DEC Portuguese - Legal - DEC Supplemental - DEC Spec. Graphics – DEC Technical - DEC 7Bit Hebrew - DEC Hebrew Supplemental - DEC Greek Supplemental - DEC 7Bit Turkish - DEC Turkish Supplemental - JIS Katakana - ISO Italian - ISO Spanish - JIS Roman - Legal
- User Preference Character Sets	DEC Supplemental - DEC Spec. Graphics – DEC Technical - DEC 7Bit Hebrew - DEC Hebrew Supplemental - DEC Greek Supplemental - DEC 7Bit Turkish - DEC Turkish Supplemental - JIS Katakana - ISO Latin 1 - ISO Latin 2 - ISO Latin 5 - ISO Latin Hebrew - ISO Latin Greek - ISO Latin Cyrillic - ISO Latin 9

Bar Codes
UPC-A, UPC-E, EAN-8, EAN-13, MSI mod 10/10, Code39, Code 128, Code 93, 2/5 Interleaved, 2/5 Industrial, 2/5 Matrix, Postnet, Codabar

Paper Handling

Base Configuration			
Fanfold Paper			
	FRONT1 PUSH TRACTOR		
	Fanfold width:	76 to 432 mm	(3 to 17 inches)
	Copies:	1 original + 5 copies	Max. thickness 0,635 mm
	FRONT2 PUSH TRACTOR		
	Fanfold width:	76 to 432 mm	(3 to 17 inches)
	Copies:	1 original + 5 copies	Max. thickness 0,635 mm

With the Pull tractor option
Push-Pull Feeding
Front fanfold insertion with Front1 Push tractor and Rear Pull tractor.

Automatic Sheet Feeder (Option)	
First tray	Single sheets, envelopes and postcards
Second and third tray	Single Sheets
Paper stacker	
- Tray capacity	120 sheets (80 g/m^2)
- Sheet width	8,89 to 30,48 cm (3,5 to 12 inches)
Copies	1 original + 2 copies
Coexisting with fanfold	

Emulations	
- EPSON ESC/P	- IBM Proprinter XL24-XL24E
- DEC PPL2	

Standard Functions
• Automatic print head gap adjustment (AGA)
• Automatic paper path switching via operator panel or S/W commands
• Paper parking

Standard Functions (cont.)
• Plug & Play capability
• Bar Code printing
• Automatic fanfold positioning for tear-off
• Setting and storage of paper format and print conditions for each paper path in the non volatile memory

Physical and Electrical Characteristics

Interfaces	
Parallel	Centronics Compatible Bi-directional (IEEE-1284) nibble and byte modes - 36 pin Amphenol connector
Serial	RS-232/C and RS-422/A - dB 25 connector
	Baud Rate: 300 to 38400 bps
Receive Buffer:	max. 32 Kbytes
Automatic interface switching	
Serial interface adapter:	translates the DECconnect 6pin connector to the RS-232/C and RS-422/A - dB 25 connector

Reliability	
MTBF	Mean Time between failure: 10000 hours at 25% DC
MTTR	Mean Time To Repair: 30 minutes
Workload	35000 pages/month (ECMA 132 - 4 hours for 20 days)

Power Supply	
UNIVERSAL	From 100 to 230 VAC -10 ~+15%, 50/60 Hz ± 2 Hz
Power Output	Max. 215 W
Power Consumption	Standby: 28W ---- Average Printing: 116 W

Noise Level
54 dBA

Environment Conditions		
Storage Conditions		
	Temperature	-35° to 65° C
	Relative Humidity	5%t o 95% RH (non condensing)
Operating Conditions		
	Temperature	10° to 40° C
	Relative Humidity	10% to 90% RH (non condensing)
Paper Conditions		
	Temperature	16° to 24° C
	Relative Humidity	40% to 60% RH (non condensing)

Physical dimensions	
Height	320 mm (12,6 inches)
Width	670 mm (26,38 inches)
Depth	460 mm (18,11 inches)
Weight	21 kg (46,35 lbs)

Consumables and Options

- Black ribbon cartridge (15 million characters)
- “Long life” black ribbon cartridge (20 million characters)
- Color ribbon cartridge (2 million characters for each band)
- Automatic Sheet Feeder (ASF) with envelopes and sheet stacker
- Two additional trays for the automatic sheet feeder
- Additional pull tractor unit for push-pull fanfold handling
- Color mechanism
- Three level floor pedestal for high paper capacity and dual fanfold
- Two level floor pedestal with tiltable printer level

Compliance Statements

FCC Compliance Statement (USA)

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver in connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note the following:

- The use of a non-shielded interface cable with the referenced device is prohibited.
- The length of the parallel interface cable must be 3 meters (10 feet) or less.
- The length of the serial interface cable must be 15 meters (50 feet) or less.
- The length of the power cord must be 3 meters (10 feet) or less.

Compliance Statement (Canada)

This digital apparatus is in conformity with standard NMB-003 of Canada.
Cet appareil numérique est conforme à la norme NMB-003 du Canada.

Compliance Statement (Germany)

Bescheinigung des Herstellers/Importeurs:
Hiermit wird bescheinigt, dass der Drucker der Maschinenlärminformationsverordnung 3. GSGV, 18.01.1991 entspricht: Der höchste Schalldruckpegel beträgt 70 dB (A) oder weniger gemäß EN27779-1991.

Compliance Statement (Europe)

Warning
This product meets the interference requirements of EN55022.
In a domestic environment, this product may cause radio interference in which case, the user may be required to take adequate measures.

Energy Star

As an ENERGY STAR® Partner, GENICOM has determined that this product meets the ENERGY STAR® guidelines for energy efficiency. The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the use of computers and other office equipment. The program backs the development and dissemination of the products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiles and copiers. Their standards and logos are uniform among participating nations.

International Compliance

CE

EN55022:1998	Emissions Series
EN 61000-3-2:1995	Power line harmonics
EN 61000-3-3:1995	Power line flicker
EN55024:1998	Immunity Characteristics
EN61000-4-2:1995	E.S.D.
EN61000-4-3:1995	Radiated Susceptibility
EN61000-4-4:1995	E.F.T
EN61000-4-5:1995	Surge
EN61000-4-6:1996	R.F. Common mode
EN61000-4-11:1994	Voltage dips and interruptions

Trademark Acknowledgements

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